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The Editor, Journal of Agriculture, Victoria Square, Adelaide."

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G. F. JENKINS,

Minister of Agriculture.

POINTS FOR PRODUCERS.

Pomelo, or Grape Fruit.

Specimens of pomelos, or grape fruits, which were picked during the middle of October, 1921, are at present on view at the Horticultural Branch of the Department of Agriculture. These fruits were wrapped in newspaper, packed in a standard fruit case, and kept in an ordinary domestic cellar for over 12 months. This member of the citrus family is a most popular one in America, where it is generally eaten before breakfast. It is not at all widely grown in South Australia, although it should do well in any of those parts where oranges and lemons thrive. There are four varieties of pomelos growing in the Government Orchard at Hackney Road; three of these, namely, "Marsh's Seedling," "Improved," and "Triumph" are of good quality.

Farmers' Day at Booborowie.

"Farmers' Day" was a very successful function at Booborowie Experimental Farm on October 31st. The local Branch of the Bureau associated itself with the manager in receiving and entertaining the visitors, who numbered about 100. The following Branches of the Agricultural Bureau were represented:—Booborowie, Booleroo Centre, Whyte-Yarcowie, Jamestown, Bundaleer, Leighton, Black Springs, Mount Bryan, and Hartley. The Director of Agriculture was also present. In the morning the visitors were shown over the plantations which have been established on the bleak highlands for the protection of livestock. These hills, in their present state, are absolutely devoid of timber, and high winds sweep down from them at all times of the year. The following trees have proved most successful up to date:—Sugar gums, South Australian blue gums, wattles, and sheaoaks. Other trees are also on trial, including several pines. Blocks of three to five acres are being sown regularly each year. Hitherto successful germination has depended very largely on the character of the spring weather. Visitors were then shown over the buildings and livestock, all of which were in good condition. After lunch the farm crops were examined. These were all found to be in very good condition, notwithstanding a somewhat trying season. The early October spell of hot weather has not damaged the crops materialy. Afternoon tea was provided for the visitors, who subsequently eulogised the ladies, and particularly Mrs. Bristow, for their efforts on their behalf. Speakers were very emphatic as to the value of seed wheat secured from the farm, and regret was expressed that greater quantities were not available. The Director was asked to limit the quantity sold to individuals. In reply, the Director pointed out that the arable area of the farm was only 530 acres, and that after deduction of hay requirements and area under bare fallow, no more than 160 to 170 acres per annum could be put under wheat. He knew that the farm could sell several thousands of bags of seed wheat more than were available. If the arable area of the farm were extended by 1,000 acres, or thereabouts, the demands for seed wheat could be met far more adequately.

If this were done, very little additional expenditure in the way of equipment and buildings would be needed. There was no doubt that this farm, which was placed in one of the best wheatgrowing centres of the Commonwealth, was admirably situated as a distributing centre for seed wheat. He would see what could be done towards limiting quantities sold to individuals down to February 1st in each year.

The Cost of Feeding Cows at Kybybolite.

A detailed account has been kept of the cost of feeding the herd of Ayrshire cattle on the Government Experimental Farm at Kybybolite. During the year ended September 30th, 1922, the value of food consumed by each cow on the average was £9 11s. This was made up as follows:—11cwts. 3½qrs. hay chaff at £3 per ton, £1 15s. 7½d.; 2 tons 16cwts. ensilage at 15s. per ton, £2 2s.; 10.8bush. of bran at £8 12s. 6d. per ton, 16s. 8d.; 24bush. of oats (crushed) at 3s. per bushel, £3 12s.; 15.4cwts. green feed at 10s. per ton, 7s. 8½d.; 4 acres pasture at 4s. per acre rent, 16s. The average cash return secured for the same period was £19 13s. 7d. per cow. Thus, it will be seen that over and above the cost of feeding, each animal returned £10 2s. 7d. during the year in question.

Wimmera Rye Grass.

For the past four years the Department of Agriculture has had under observation at the Experimental Farms at Veitch, Kybybolite, and Minnipa, small areas of Wimmera Rye Grass. Up till the present this grass has given indication of being a valuable addition to the fodder crops which can be grown under the conditions represented by these farms. Not only is it fairly drought resistant, as is evidenced by the growth made at Veitch on a rainfall of slightly under 13in. per annum, but it also does well in the heavier rainfall conditions prevailing at Kybybolite. It belonged to the same family as the Perennial and Italian Rye Grasses and the common weed Drake. Although it is very similar in appearance to the last named, it is of good feeding value.

Legislation Controlling the Sale of Hay and Chaff.

Since 1908, the sale of hay and chaff in South Australia has been regulated by legislation administered by the Horticultural Branch of the Department of Agriculture. The principal object of this legislation is the protection of purchasers against short weight and inferior quality. During the present session of Parliament, an amending Act has been passed. The new Act requires all chaff to be sold by weight and the bags in which it is contained are to be weighed and sold as chaff, unless it is otherwise expressly agreed upon between the purchaser and the seller. The seller of every parcel of chaff is compelled to give the purchaser a note setting out the exact weight, together with the number of bags in which the chaff is contained. The sale of chaff which is mouldy, or which contains more than 12½ per cent. by weight of moisture, or contains weeds or foreign matter, not permitted by regulation, or packed in bags which have previously contained any fertiliser, is forbidden. Chaff intended for sale must be made only from certain specified plants cut at a certain stage of maturity, described in the legislation. Dealers and cutters are required to register within a period of 30 days after commencing operations. Neglect so to do, renders them liable to a penalty. Farmers, except when retailing chaff, are exempt from the provision of the new legislation. Details of the provision of the recently amended Act are being printed in leaflet form and will be procurable from the Department of Agriculture in the near future.

The Agricultural Bureau.

During the year ended June 30th, 1922, 14 new Branches of the Agricultural Bureau were formed. The centres in which these have been established were:—Rendelsham, Pygery, Winkie, Weavers, Balhannah, Second Valley, Windsor, Kangarilla, Maltee, Tarlee, Owen, Streaky Bay, Block E., and Pata. This brings the number of Branches in the State up to 220, with a membership of 6,124, or an average of slightly under 28 members per Branch. The past decade has seen a noteworthy increase in the activity of this institution. In 1912 there were 134 Branches with a membership of 2,840. It will be seen, therefore, that the membership has more than doubled in the 10-year period.

Subsidised Sale of Pure-bred Bulls.

The first sale of pure-bred bulls under the provisions of the Dairy Cattle Improvement Act is to be held in Adelaide during the show week in September, 1923. Subject to certain conditions, purchasers of bulls at this sale will be eligible for a subsidy of up to £50 on account of each animal. One condition governing this subsidy is that the bulls shall be the progeny of officially tested stock of satisfactory performance with records agreeing with standards fixed. Therefore, breeders who desire to submit bulls for sale under these conditions should, as early as possible, have the dams put under official test with the Department of Agriculture, to which they should apply for detailed particulars. In addition, the animals on which a subsidy is paid must be registered in a Herd Book, or eligible for Herd Book entry. They must be well grown and true to type, and not less than 10 months or more than five years from calving. In the case of bulls over two years old, owners must produce evidence of fertility in the preceding year. The animals must also have passed a tuberculin test within six months prior to the date of sale. To secure the Government subsidy, the purchaser of any bull which fills the conditions set out above will be required to make it available for use to others at a fee not exceeding 10s. per cow. In the case of bulls under two years of age, the owner need not accept more than 15 outside cows during the first year, but no subsidy will be paid unless he can show evidence of having accepted not less than 10 outside cows for the same period. For bulls of two years, or over, the maximum number of cows that the owner must accept is raised to 25, whilst the minimum entitling him to a subsidy remains 10.

POWER FOR ALL FARM WORK.

There are many other uses for a good tractor on your farm besides plowing. The tractor that is not equally serviceable for belt work as for draw-bar work is only half a tractor. You may not realise it now, but you will find, as others have after running their tractor a short time, that fully half of its service will be on belt work.

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Alsike Clover.

Amongst the fodder crops under test at the Government Experimental Farm at Kybybolite is Alsike Clover. At the present time there is on this farm an area of this clover which has covered the ground with a dense mass of growth about 9in. to 12in. in height, to the exclusion of all other growth. This particular clover is somewhat new to South Australian conditions, and farmers in the neighborhood of Kybybolite have shown keen interest in the plot in question. Some have already expressed their intention of trying it on their own holdings. As a foodstuff, Alsike ranks very high amongst the well-known European clovers.

Cotton on the River.

In addition to areas of cotton that are being put in by private individuals and the Cotton Growers' Association, the Horticultural Branch of the Department of Agriculture has this season sown an area at the Government Experimental Orchard, Berri. The sowing consists of a few rows of each of 11 varieties, namely:—Cocker's Lightning Express, Delta type, Durango, Acala, Pima, Sakelarides, Brown No. 4, Hartsville No. 12, Sunbeam Long Staple, Allan's Improved Long Staple, and Webber 49. Of these varieties the first-named four were not grown at the Berri Orchard last year. They have been planted along with the others with the object of securing information as to the comparative ripening periods as well as the quality of the staple. It is understood that the four varieties referred to, and particularly Cocker's Lightning Express and Durango, are rapid maturing kinds, being ready to harvest within five months of the time of planting. If this should prove to be the case here, it will be of considerable interest from the river point of view, because it will enable the cotton harvest to be completed before the pruning and winter cultivation of deciduous trees and vines are undertaken, or the citrus harvest is in full swing.

Lincoln Reds at Roseworthy.

The first Lincoln Red Shorthorn calf was dropped at Roseworthy Agricultural College on Friday, October 27th. This calf is a heifer, and is by the oversea bull "Harrington Comet" (No. 15488, Lincoln Red Herd Book), out of Major T. Jessop's heifer "Harrington Amelia" (Volume 27, Lincoln Red Herd Book), which was by the well-known sire "Kirmington Excursionist XIII." (No. 11689, Lincoln Red Herd Book).

Fattening Table Poultry for Christmas.

In this State, very little attention is paid to fattening poultry intended for table use. It is poor economy to kill "store" or unfattened birds, because the same work is involved in killing and dressing a poorly fleshed bird, as is necessary in the case of a plump, meaty specimen. In the unfattened specimen there may be some flesh on legs, wings, and breast, but it is not of the best quality owing to the absence of a due proportion of fat which much improves the quality and increases the quality of the flesh. To get the best results, chickens should be from four to six months old, and ducklings from nine to twelve weeks. The Poultry Branch of the Department of Agriculture states that various methods may be adopted for fattening chickens. They may be kept in small flocks in ordinary houses and yards, or in crates. It is a good plan to feed them lightly for a few days, in either case, until the birds are hungry and take their food readily, then gradually increase the quantity until they consume three meals daily. If they are in poor condition, it will take three or four weeks to get them ready for finishing off. During this period, bran and pollard in equal portions by bulk may be fed and mixed as follows:—Scald the bran with hot water or separated milk, adding salt at the rate of one ounce per 100 birds. Then mix the scalded bran with the dry pollard until a crumbling mess is produced. Of this give as much as they will clean up in say half an hour. Remove any not consumed. On no account use stale or fermented food. In the yard or fattening crate, provide a hopper containing shell or charcoal grit, and fresh clean drinking water should be always available to the birds. Finishing, or topping off, is carried out in crates, and the food is semi-fluid (consistency of unscalded cream), made of pollard (or wheat meal), warm water, or separated milk, to which is added fresh sweet lard or rendered fat at the rate of one pound daily for 40 chickens, and salt as before. The fat should be well rubbed in a little pollard (or meal) and then incorporated with the bulk of the pollard (or meal) before it is moistened. No drinking water is needed, but grit must be provided. Green feed or meat in any form should not be used. The birds should be kept in a cool, shady, quiet place. Ducklings (in yards and in small lots of six or eight) may be fattened on the finishing diet, but in a more liquid state, adding one-third more fat. They will consume large quantities of grit and sharp gravel, such as one-eighth ($\frac{1}{8}$) inch quarry chippings. Ducklings must be kept shaded from the hot sun. All poultry should be fasted for 24 hours before killing—during this period they must have water to drink. More detailed information is to be found in "The Poultry Manual," published by the Department of Agriculture.

Thrips and Mites.

The early summer season appears to have been particularly favorable to the development of such bud pests as Thrips and Mites, which are frequently classed together under the common name of "Red Spider." The former are minute, active insects, which do much damage to the floral organs of fruit trees, more particularly apples. They appear to arrive in swarms. They attack the buds just as the flowers are starting to open. Owing to their small size, they are able to penetrate between the folded petals and not only damage these, but the stamens and pistils as well. Thus they prevent the natural process of fertilisation taking place, and it is possible that the poor setting of many varieties of apples this year may be due to the presence of this pest. The remedies which have been found by the Horticultural Branch of the Department of Agriculture to be useful in combating this pest consist chiefly of tobacco and soap sprays. These should be applied thoroughly just when the flower buds are showing a pink color and a few of the blossoms are open. Although it is too late this season to do anything in this way, it is well that fruitgrowers should remember the fact that this pest breeds very freely in rose bushes, dog roses, briars, and boxthorns. The so-called Red Spider is more persistent upon the stone fruits, such as plums, almonds, peaches, and particularly upon some sorts of vegetables, such as summer beans. The standard remedy against all members of the mite family is some form of sulphur, and the use of a lime sulphur spray is recommended.

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[Replies supplied by Mr. C. A. LOXTON, B.V.Sc., Government Veterinary Surgeon.]

Hon. Secretary, Agricultural Bureau, Talia, reports common complaint among sheep of the district. Swollen pizzle, sores develop, and when the scab is removed a discharge comes from the pizzle.

Reply—This disease is a common one, affecting principally Merino wethers, though occasionally young rams are affected. It is due to the irritation set up by the urine being retained in the wool of the part, which leads to inflammation of the sheath, balanitis, or pizzle disease. This trouble can largely be prevented by keeping the wool clipped from around the part; but the long, straight hairs from the end of the sheath should not be cut off, as they serve to drain the urine away. Mild cases may be treated by cleansing the part with warm water and a little disinfectant (lysol or carbolic). The inside of the sheath must also be washed out by means of a small glass syringe, and all pus and other material carefuly squeezed out. Then syringe out the sheath with bluestone solution, using ½oz. to a pint and a half of lukewarm water. Dressings should be repeated several times at intervals of three or four days. If the case does not respond to several dressings, or in all severe cases, surgical treatment must be adopted. Turn the sheep on his back, and slit the sheath for its whole length along the lower border. Cleanse carefully with a soft rag or with cotton wool, and dust with boracic acid. Leave the wound open, and for subsequent dressings use bluestone solution, 1oz. to a pint of water.

Hon. Secretary, Agricultural Bureau, Kongorong, reports mare with a mass of new tissue on the hock, consequent upon an old barb wire injury.

Reply—This "lump of proud flesh" should be removed with a knife. This is quite a simple matter, but you must be prepared for a good deal of bleeding. Put a twitch on her. Cut away the mass of new tissue (proud flesh), reducing it o the level of the skin with a clean and sharp knife. This tissue, though very ascular, is insensitive, so that you will not be inflicting any pain. The bleeding an be controlled by placing over the wound a large pad of dry cotton wool and pplying a bandage. Tie the mare up in the stable for a few hours, after which he bandage can be removed and the wound cleansed and wound powder applied. After treatment consists in the daily application of dry dressings, such as zinc oxide. Do not wash the wound too much, as continuous bathing encourages the ormation of "proud flesh."

Hon. Secretary, Agricultural Bureau, Currency Creek, asks the reason for sheep going blind. The sheep are on clean pasture, and have never been travelled or mixed with other stock.

Reply—The most common cause of blindness in sheep is a contagious form of nflammation of the eye. The eyes become quite cloudy (opacity of the cornea), nd there is more or less discharge. The disease usually ends in recovery; but a mall percentage of cases become permanently blind, owing to structural changes onsequent upon the inflammation. There is considerable loss of condition, owing to the pain, blindness, and difficulty in feeding. Affected sheep should be isolated for treatment, if possible. Apply a few drops of the following lotion once daily with an eyedropper:—Sulphate of zinc, 6 grains; tincture of opium, 10 minims; distilled water, 2ozs.; mix. Daily bathing the eyes with a lotion of boracic acid made by dissolving a tablespoonful of boracic in a quart of water will give good results.

"J. R. G.," Tanunda, has aged cow with a lump in one hind teat.

Reply—The hardness of the quarter and the discharge of watery liquid indicates mammitis. There appears also to be an obstruction in the teat of this quarter. I advise you to apply warm foments, strip out the quarter frequently and thoroughly. Give it plenty of gentle hand massage, and apply camphorated oil.

"J. F.," Gumbowie, has sheepdog (bitch) which he believes to be suffering from the after-effects of poisoning by strychnine.

Reply—I recommend you to put her on Syrup Ferri. Phosp. Co. (Parrish's Syrup). Give one teaspoonful twice daily in a little water.

"J. A. S.," Mount Bryan, has mare, recently foaled. Suffering badly with scours, has scanty milk supply.

Reply—I advise you to give her quinine sulphate, one flat teaspoonful twice daily, mixed with a little treacle and given on the tongue. She appears to have inflammation of the womb, and will require local treatment also. Douch her out twice daily with weak permanganate of potash solution (Condy's). This can be done with a piece of india rubber tubing and a tin funnel, and should be continued until the solution comes away the same color as when put in. If the diarrhoea continues, give chlorodyne as before. This trouble is often complicated by an attack of lamminitis (founder).

"W. B. C.," Lameroo, reports horse with sores on the lips and end of the tongue.

Reply—He is suffering from stomatitis, and I recommend you to dress the sores with a solution of permanganate of potash (Condy's). Give him soft food and also a teaspoonful of chlorate of potash daily dissolved in his drinking water.

"E. V. P.," Solomontown, has cow off food, weak in hind legs, turns her head from side to side; dry on the nose. These symptoms followed an attack of milk fever.

Reply—I advise you to give her the following powders:—Powdered nux vomica, ¾oz.; powdered carbonate of ammonia, 3ozs.; mix. Divide into 12 powders; give one twice daily with a pint of cold water and a cupful of treacle.

Hon. Secretary, Agricultural Bureau, Shoal Bay, reports colt which has sores broken out above both front hoofs, and discharging matter.

Reply—The colt is suffering from a form of coronitis, and I recommend the following dressing:—Formalin, 1oz.; glycerine, ¼ pint; methylated spirits, ½ pint; mix. Apply daily by painting with a swab or an old brush.

"W. A. L.," Buccleuch, has horse with a bony swelling on the lower jaw.

Reply—I do not think that any treatment can be recommended. I should, however, be glad of the following information:—Age of horse; how long has swelling been present? size and character of swelling; is it increasing in size? does it interfere with mastication?

Hon. Secretary, Agricultural Bureau, Paruna, has horse with a white scum growing over the eye.

Reply—This is the result of some inflammatory condition, and may have been due to the presence of some foreign body, such as a husk of chaff, or some other injury. Try the following lotion:—Sulphate of zinc, 6 grains; tincture of opium, 20 minims; distilled water, 2ozs.; mix. Apply a few drops daily with an eyedropper.

Hon. Secretary, Agricultural Bureau, Yeelanna, reports mare, 5 years old, with a large swelling on each nostril just below the eyes.

Reply—The swelling is probably due to disease of the facial bones, and may be from osteo-porosis. I shall be glad if you could arrange to have a photograph taken, when I should be in a better position to advise you.

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Hon. Secretary, Miltalie Agricultural Bureau, seeks advice regarding two cows, which, just after calving, became sick, thin, and weak, and recovered after being dosed with Berg. oil.

Reply—These two cows were probably affected with impaction of the rumen.

"H. S. M.," Franklin Harbor, reports gelding which got into wheat crop and subsequently developed gastric symptoms and founder, with cough.

Reply—The cough appears to me to be due to mechanical pneumonia, from the inspiration of food material down the windpipe. This would be likely to take place when he was rejecting food through the nostrils. The condition is always a serious one, but I should think that his chance was hopeful now that his appetite has returned. He requires good nursing more than medicine. Feed him carefully. Give him Epsom salts 1oz., saltpetre 1 teaspoonful, once daily in mash or drinking water. Do not give any medicine in the form of a drench. Give inhalations of steam daily or when the cough is troublesome. Use a small quantity of eucalyptus oil or friar's balsam when steaming.

"W. F. G.-E.," Parilla, asks method of preparation of limewater for calves.

Reply—You can make this by adding 2ozs. of lime to a gallon of rain water. Mix thoroughly, allow the sediment to settle, and after a few hours syphon off the clear fluid for use. Use about half a cupful to a gallon of milk when feeding calves.

"H. S.," Mount Cooper, reports horses and cows whose eyes are discharging watery liquid. The eyeball is very inflamed, and a dense milky film comes over the ball. The eyes are painful.

Reply—The affection is known as epizootic keratitis, in which ulceration of the cornea is a common complication. A condition such as you describe may also be due to mechanical injuries, such as might occur in grazing among thistles, or from the presence of husks of chaff in the eye. Epizootic keratitis is a form of inflammation of the eye most common in sheep and cattle, and occasionally affecting horses. It is contagious, and it would be advisable to isolate affected animals. The most simple form of treatment is irrigation with weak permanganate of potash solution (Condy's). Use as much as will go on a 3d. to a gallon of rain water. Bathe the eyes carefully with this solution, and afterwards place a piece of yellow oxide of mercury ointment, 1 per cent. strength, about the size of a pea, within the eyelids, and hold them together until it melts and is distributed over the eye. You will have to obtain the latter from the chemist at Port Lincoln. Dress daily. You will have less trouble with these cases if you can keep the eye covered; otherwise keep them in a darkened loosebox or shed.

"R. T.," Yednalue Station, asks if a person buys sheep marked with a registered brand, can he put his registered brand on same sheep?

Reply—Yes, provided that the sheep purchased are not branded on his registered position. If they are, the purchaser cannot use his registered brand, but can use any numeral from 2 to 9 on any position and color until next shearing.

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THE THIRD REPORT OF THE STATE EXPERIMENT ORCHARD, BERRI, RIVER MURRAY.

[By GEO. QUINN, Horticultural Instructor, Etc., and C. G. SAVAGE, Manager.]

(Continued from page 699, March 1922, Journal.)

II.—GRAPE VINE EXPERIMENTS.

1.—FERTILISER EXPERIMENTS.

The vines in the fertiliser tests were planted in 1912, and the fertilisers have been applied annually since 1913. In order to minimise the trouble of vines in the barrier rows robbing some of the fertilisers applied to the test rows, fertilisers were applied to the barrier rows in 1920, and will in future be applied annually. The side of each barrier row which is adjacent to the test row received half quantities of the same fertiliser or fertilisers as such test row, for example, row 7 on the eastern side was dressed with ½cwt. sulphate ammonia, and on the western side with ½cwt. sulphate potash per acre, because it stands between rows manured with sulphate of ammonia and sulphate of potash respectively.

The rows in each plot are 12ft. apart and 250ft. long, the acre results are calculated on the basis that each row occupies an area of 3,000 square feet.

The total returns from the trellised Muscat Gordo Blanco vines show an advance in 1920 over the 1919 weights, but owing to the serious damage resulting from the February rains the 1921 crop fell below the average. The crops harvested from the bush vines in 1920 were the heaviest recorded from the plots, the 1921 returns were low owing to the rains.

The currant yields in both 1920 and 1921 show increased returns over previous crops, the 1921 fruit having been gathered prior to the untimely downpour.

The Sultana vines carried heavier crops in the two seasons under review, but the quality of the 1921 fruit was much impaired through rain.

A.—Muscatel Gordo Blanco Plot.

(Half the vines in each row trellised on low wire, half trained as gooseberry bushes.)

As in previous years the trellised vines have shown a heavier yield of raisins than the vines trained on the gooseberry bush system.

Over a period of four (4) years the sulphate of ammonia and sulphate of potash combination has given the best average yield from the total row. In the returns from both the trellised and bush trained vines this combination of fertilisers is shown in the second position. The superphosphate and sulphate of ammonia combination produced the highest average returns per acre from the trellised vines, yet is only placed fifth in the bush section, and is second in the returns from the figures of the complete row.

As in the rows of currants and sultanas it will be noted the lowest drying ratio goes to a non-manured row.

From the bush vines the superphosphate, sulphate of ammonia, and gypsum combination gave the highest yield, but the test is shown in the sixth place both in the trellised vines and row totals.

In comparing the average yields from the various tests it is interesting to note that the no-fertiliser test No. 2 has remained in the lowest position for the last four seasons, while test No. 12, no-fertiliser, has fallen from the second position in 1918 to fifth in 1921. In these trials the nitrogenous fertiliser is common to the first three tests showing the heaviest yield of fruit, and phosphatic and potassic to two.

From this data it appears that a complete fertiliser in the form of sulphate of ammonia, sulphate of potash, and superphosphate is applied, increased returns of grapes may be expected.

TABLE XVI.—*Showing the Results from the Muscatel Gordo Blanco Vines in the Fertiliser Tests,* 1920 *and* 1921.

Row No.	Fertilisers Applied—Rate per Acre.	Trellised Vines.						
		1920.		1921.		Acre Average for 4 Years.		
		Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Dryin Ratio
2....	No manure	236·00	85·00	142·50	56·00	3652·11	1427·58	[illegible]
4....	Superphosphate, 2cwts.	340·00	119·50	214·50	70·00	6212·74	2112·91	[illegible]
6....	Sulphate ammonia, 1cwt. ...	390·00	147·00	234·00	85·00	6781·49	2460·15	[illegible]
8....	Sulphate potash, 1cwt.......	364·00	103·00	211·50	87·00	7196·85	2356·20	[illegible]
10....	Superphosphate, 2cwts.; Sulphate potash, 1cwt.	481·50	143·00	271·00	87·00	10239·07	3187·80	[illegible]
12...	No manure	480·50	142·00	211·50	75·00	9404·01	3049·20	[illegible]
14...	Sulphate potash, 1cwt.; sulphate ammonia, 1cwt.	642·00	191·00	338·50	117·00	12948·70	4220·37	[illegible]
16...	Superphosphate, 2cwts.; sulphate ammonia, 1cwt.	708·00	205·00	384·50	127·00	14968·80	4407·48	[illegible]
18....	Superphosphate, 2cwts.; sulphate potash, 1cwt.; sulphate ammonia, 1cwt.	600·00	187·00	298·00	115·00	10845·45	3582·81	[illegible]
20...	Superphosphate, 2cwts.; sulphate potash, 1cwt; gypsum, 3cwts.	482·00	155·00	234·50	96·00	8754·34	2855·16	[illegible]
	Totals	4724·00	1477·50	2540·50	915·00	9100·12	2968·86	[illegible]

Row No.	Bush Vines.							Row Totals.		
	1920.		1921.		Acre Average for 4 Years.			Acre Average for 4 Years.		
	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio.	Fresh Fruit.	Dried Fruit.	Dryin Ratio
2.....	72·00	29·00	20·50	10·00	1181·47	453·53	2·60	2475·66	963·76	[illegible]
4.....	42·50	17·00	11·50	3·50	731·73	270·60	2·70	3602·77	1248·72	[illegible]
6.....	27·50	12·00	3·50	2·00	617·42	259·16	2·38	3845·98	1412·07	[illegible]
8.....	92·00	39·00	21·00	11·00	1714·96	701·27	2·44	4586·50	1568·16	[illegible]
10.....	84·50	38·00	33·50	15·00	1558·79	670·78	2·32	6105·66	1989·24	[illegible]
12.....	111·50	36·00	53·00	22·00	2160·97	807·98	2·67	5955·00	1981·98	[illegible]
14.....	133·00	59·00	15·50	5·00	2378·21	960·43	2·47	7915·21	2668·05	[illegible]
16.....	68·50	34·00	35·50	16·00	1634·99	731·76	2·23	8619·43	2657·16	[illegible]
18.....	90·50	42·00	41·50	24·00	2130·48	922·32	2·31	6698·53	2315·94	[illegible]
20.....	130·00	56·00	84·00	25·00	2667·87	1006·27	2·65	5855·19	1974·72	[illegible]
Totals..	852·00	362·00	319·50	133·50	1677·71	678·41	2·47	5565·69	1877·97	[illegible]

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TABLE XVII.—*Showing the Results (fresh fruit only) from the Muscatel Gordo Blanco Vines planted as Barrier Rows in the Fertiliser Tests, 1920 and 1921.*

Row No.	Fertilisers Applied—Rate per Acre.	Trellised Vines.						
		1920.		1921.		Acre Average for 4 Years.		
		Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio.
1...	No fertiliser	236·50	—	106·50	—	3288·28	—	—
3...	Superphosphate, 1cwt.	323·50	—	81·00	—	3544·69	—	—
5...	Superphosphate, 1cwt.; sulphate ammonia, ½cwt.	206·00	—	85·00	—	3049·18	—	—
7...	Sulphate ammonia, ½cwt.; sulphate potash, ½cwt.	394·50	—	172·50	—	5377·68	—	—
9...	Sulphate potash, 1cwt.; superphosphate, 1cwt.	350·00	—	145·50	—	6101·86	—	—
11...	Superphosphate, 1cwt.; sulphate potash, ½cwt.	412·00	—	173·50	—	6947·32	—	—
13...	Sulphate potash, ½cwt.; sulphate ammonia, ½cwt.	418·00	—	161·00	—	7633·39	—	—
15...	Sulphate potash, ½cwt.; sulphate ammonia, 1cwt.; superphosphate, 1cwt.	407·50	—	144·00	—	7221·06	—	—
17...	Superphosphate, 2cwts.; sulphate potash, ½cwt.; sulphate ammonia, 1cwt.	471·00	—	211·50	—	7952·17	—	—
19...	Superphosphate, 2cwts.; sulphate potash, 1cwt.; sulphate ammonia, ½cwt.; gypsum, 1½cwts.	373·50	—	168·50	—	6372·13	—	—
21...	Superphosphate, 1cwt.; sulphate potash, ½cwt.; gypsum, 1½cwts.	344·50	—	120·50	—	5544·00	—	—
	Totals	3937·00	1263·00	1569·50	551·00	5793·16	1847·79	[illegible]

Row No.	Bush Vines.							Row Totals.		
	1920.		1921.		Acre Average for 4 Years.			Acre Average for 4 Years.		
	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio.	Fresh Fruit.	Dried Fruit.	Drying Ratio.
1.....	52·50	—	12·50	—	800·35	—	—	2103·58	—	—
3.....	85·00	—	10·50	—	945·18	—	—	2306·86	—	—
5.....	47·00	—	8·50	—	594·55	—	—	1880·34	—	—
7.....	54·00	—	3·50	—	769·87	—	—	3183·51	—	—
9.....	87·50	—	19·00	—	1581·68	—	—	3949·44	—	—
11.....	69·50	—	22·00	—	1349·18	—	—	4281·58	—	—
13.....	123·00	—	36·50	—	2432·48	—	—	5101·96	—	—
15.....	109·50	—	14·50	—	1600·72	—	—	4544·76	—	—
17.....	114·50	—	39·00	—	2168·60	—	—	4361·42	—	—
19.....	136·50	—	49·50	—	2443·01	—	—	4501·20	—	—
21.....	138·50	—	62·50	—	2766·96	—	—	4221·69	—	—
Totals	1017·5	419·00	278·00	190·00	1577·04	638·02	2·47	3785·51	1271·82	[illegible]

B.—Zante Currant Trials.

During the four seasons under review the superphosphate, sulphate of potash, and gypsum combination has given the best average returns. The superphosphate and sulphate of ammonia trial gave the next best results, and the superphosphate, sulphate of ammonia, and sulphate of potash combination is placed third, with the potash and ammonia plot in the next position.

In the first three tests superphosphate is common to all, while both sulphate of ammonia and sulphate of potash are each found in two. The no-fertilisers trials have fallen from ninth to tenth and from third to seventh places respectively. Indications appear to point that where superphosphate is applied in conjunction with sulphates of ammonia and potash increased yields of currants may be expected. A non-manured row again shows the lowest drying ratio.

Table XVIII.—*Showing the Results from the Zante Currant Vines in the Fertiliser Tests in* 1920 *and* 1921.

Fertilisers Applied—Rate per Acre.	1920.		1921.		Acre Average for 4 Years.		
	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio.
No fertiliser	318·00	113·00	309·50	121·00	4348·74	1569·97	2·77
Superphosphate, 2cwts.	357·00	126·00	364·00	145·50	4807·93	1715·17	2·80
Sulphate ammonia, 1cwt.	467·00	163·00	378·50	158·00	5559·34	1972·90	2·81
Sulphate potash, 1cwt.	428·50	150·00	406·50	158·00	5537·56	1951·12	2·84
Superphosphate, 2cwts. ; sulphate potash, 1cwt.	405·00	151·00	377·50	142·00	5299·80	1833·15	2·89
No fertiliser	422·00	149·00	366·50	148·50	5521·23	1943·86	2·84
Sulphate potash, 1cwt. ; sulphate ammonia, 1cwt.	319·00	139·00	438·00	174·00	5508·52	1963·83	2·80
Superphosphate, 2cwts. ; sulphate ammonia, 1cwt.	455·00	167·00	528·00	189·00	6504·96	2248·78	2·89
Superphosphate, 2cwts. ; sulphate potash, 1cwt. ; sulphate ammonia, 1cwt.	447·50	159·00	542·00	173·00	6341·61	2139·88	2·96
Superphosphate, 1cwt. ; sulphate potash, 1cwt. ; gypsum, 3cwts.	409·00	153·00	615·00	200·00	6804·43	2301·42	2·95
Totals	4028·00	1470·00	4325·50	1609·00	5623·41	1964·00	2·86

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TABLE XIX.—*Showing the Results (in fresh fruit only) from the Zante Currant Vines Planted as Barrier Rows in the Fertiliser Tests,* 1920 *and* 1921.

Row No.	Fertilisers Applied—Rate per Acre.	1920.		1921.		Acre Average for 4 Years.		
		Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio.
1...	No fertiliser	597·00	—	498·50	—	7180·14	—	–
3...	Superphosphate, 1cwt.	572·00	—	483·00	—	6804·43	—	–
5...	Superphosphate, 1cwt.; sulphate ammonia, ½cwt.	581·50	—	411·50	—	5902·38	—	–
7...	Sulphate ammonia, ½cwt.; sulphate potash, ½cwt.	530·00	—	437·00	—	6016·72	—	–
9...	Sulphate potash, 1cwt.; superphosphate, 1cwt.	618·00	—	499·50	—	6956·89	—	–
11...	Superphosphate, 1cwt.; sulphate potash, ½cwt.	553·50	—	420·00	—	6887·92	—	–
13...	Sulphate potash, ½cwt.; sulphate ammonia, ½cwt.	551·50	—	666·50	—	7653·85	—	–
15...	Sulphate potash, ½cwt.; sulphate ammonia, 1cwt.; superphosphate, 1cwt.	504·00	—	587·00	—	7416·34	—	–
17...	Superphosphate, 2cwts.; sulphate potash, ½cwt.; sulphate ammonia, 1cwt.	666·50	—	772·00	—	8926·17	—	–
19...	Superphosphate, 2cwts.; sulphate potash, 1cwt.; sulphate ammonia, ½cwt.; gypsum, 1½cwts.	544·50	—	225·00	—	6946·01	—	..
21...	Superphosphate, 1cwt.; sulphate potash, ½cwt.; gypsum, 1½cwts.	593·00	—	789·50	—	8750·11	—	–
	Totals	6311·50	—	5789·50	—	7221·88	—	–
		Two rows on western side of Muscatel Gordo Blanco Tests.						
22...	—	256·50	—	452·50	—	5935·05	—	–
23...	—	319·00	—	575·50	—	7174·69	—	–
		6887·00	2733·00	6817·50	2913·00	7119·27	2652·82	2·6

C.—Sultana Plots.

The heaviest average yield of dried sultanas has been produced by the superphosphate, sulphate of potash, and sulphate of ammonia combination for the four seasons. It is interesting to note that this trial has produced the highest returns each season. The sulphate of ammonia and sulphate of potash trial on the average returns being placed in the second position, and the superphosphate and sulphates of ammonia and potash combination in the third. The vines to which superphosphate, sulphate of potash, and gypsum were applied gave the fourth average yield of dried fruit. The No. 2 no-fertiliser plot has consistenly occupied the lowest position in the returns, while No. 12 no-fertiliser plot, which fell from fifth place in 1918 to ninth in 1919, is now in the seventh position.

In this series of tests it will be observed from the Table XX. the row fertilised with a nitrogenous manure has given a greater weight of fruit than any other row dressed with either a phosphatic or potassic fertiliser only. In those rows where a nitrogenous fertiliser is combined with either a phosphatic or potassic fertiliser the returns are better than where the last named are blended without the nitrogen.

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The heaviest yield of all has resulted from a complete combination of the nitrogenous phosphatic and potassic manures. It will be observed that the lowest drying ratio goes to a non-manured row.

TABLE XX.—*Showing the Results from the Sultana Vines in the Fertiliser Tests in* 1920 *and* 1921.

Row No.	Fertilisers Applied—Rate per Acre.	1920.		1921.		Acre Average for 4 Year		
		Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio
2...	No fertiliser	271·00	80·00	428·00	114·00	4150·90	1185·19	3·5
4...	Superphosphate, 2cwts.	379·00	108·00	520·00	132·50	5040·25	1379·40	3·6
6...	Sulphate ammonia, 1cwt. ...	371·50	103·50	577·50	155·00	5933·23	1624·42	3·6
8...	Sulphate potash, 1cwt.......	305·50	84·00	380·50	102·00	4345·11	1208·79	3·5
10...	Superphosphate, 2cwts.; sulphate potash, 1cwt.	316·50	88·50	427·50	107·50	4470·34	1221·49	3·6
12...	No fertiliser	341·00	98·00	469·00	125·00	4691·77	1308·61	3·5
14...	Sulphate potash, 1cwt.; sulphate ammonia, 1cwt.	450·00	134·00	694·50	186·50	6962·34	1972·90	3·5
16...	Superphosphate, 2cwts.; sulphate ammonia, 1cwt.	442·50	132·00	622·50	160·50	6720·94	1874·89	3·5
18...	Superphosphate, 2cwts.; sulphate potash, 1cwt.; sulphate ammonia, 1cwt.	450·00	129·00	710·50	196·00	7497·76	2078·17	3·6
20...	Superphosphate, 1cwt.; sulphate potash, 1cwt.; gypsum, 3cwts.	426·00	121·00	519·00	149·00	5829·78	1651·65	3·5
	Totals	3753·00	1078·00	5349·00	1428·00	5564·24	1550·55	3·5

TABLE XXI.—*Showing the Results (in fresh fruit) from the Sultana Vines planted as Barrier Rows in the Fertiliser Tests in* 1920 *and* 1921.

Row No.	Fertilisers Applied—Rate per Acre.	1920.		1921.		Acre Average for 4 Years.		
		Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio
1...	No fertiliser	398·00	—	419·00	—	4964·02	—	—
3...	Superphosphate, 1cwt.	477·50	—	221·50	—	3786·09	—	—
5...	Superphosphate, 1cwt.; sulphate ammonia, ½cwt.	314·50	—	301·50	—	3757·05	—	—
7...	Sulphate ammonia, ½cwt.; sulphate potash, ½cwt.	332·50	—	232·50	—	3642·70		—
9...	Sulphate potash, 1cwt.; superphosphate, 1cwt.	254·00	—	235·50	—	3381·34	—	—
11...	Superphosphate, 1cwt.; sulphate potash, ½cwt.	267·50	—	307·50	—	3642·70	—	—
13...	Sulphate potash, ½cwt.; sulphate ammonia, ½cwt.	318·00	—	213·50	—	3689·87	—	—
15...	Sulphate potash, ½cwt.; sulphate ammonia, 1cwt.; superphosphate, 1cwt.	284·00	—	193·00	—	3855·06	—	
17...	Superphosphate, 2cwts.; sulphate potash. ½cwt.; sulphate ammonia, 1cwt.	367·00	—	352·00	—	5680·95	—	—
19...	Superphosphate, 2cwts.; sulphate potash, 1cwt.; sulphate ammonia, ½cwt.; gypsum, 1½cwts.	361·50	—	236·50	—	4410·45	—	—
21...	Superphosphate, 1cwt.; sulphate potash, ½cwt.; gypsum, 1½cwts.	286·50	—	207·50	—	3497·51	—	—
	Totals	3661·00	1071·00	2920·00	1258·50	4027·98	1314·72	3

In summarising the results of these tests conducted in vine manuring for four consecutive years, three features are outstandingly consistent. Firstly, a nitrogenous fertiliser seems essential to healthy growth and increased bearing; secondly, this soil is evidently deficient in the three most essential plant foods at any rate in an available form, and, thirdly, in no instance has the application of any fertiliser or combination of fertlisers reduced the weight of fresh grapes required to produce one pound of dried raisins or currants.

2.—VINE PRUNING AND TRAINING TRIALS.

A.—*Muscatel Gordo Blanco.*

The vines trained as Thomery espaliers and pruned to two-bud spurs, have given the best returns over the four-year period. The gooseberry bush rod and spur-pruned vines are placed second on the average yield column, but these vines have fallen from the first position in 1918 to fourth in 1921. The gooseberry bush vines pruned to one-bud spurs though shown fourth in average yields per acre have risen from fourth position in 1918 to second in 1921. The cordon vines pruned to two-bud spurs produced the second heaviest returns in 1918, and gave the lowest in 1921. On the acre averages for the four seasons this test is shown in the third position.

From this data one would not feel justified in recommending any particular system at the present time, but indications are in favor of the espalier framed vines pruned to two-bud spurs.

TABLE XXII.—*Showing the Results obtained in* 1920 *and* 1921 *from the Muscatel Gordo Blanco Vines in the Pruning and Training Trials.*

Row No.	Test.	1920.		1921.		Acre Average for 4 Years.		
		Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio.
9 and 10	Each vine trained as a Thomery espalier with one pair of arms. Vines pruned to spurs of two buds	2684·00	914·00	602·00	285·50	10960·33	3864·11	2·84
11 and 12	Each vine trained as a cordon. Vine pruned to spurs of two buds	1950·50	688·00	374·50	143·00	8429·77	3163·64	2·66
21 and 22	Each vine trained as a gooseberry bush, with one or more rods and spurs carrying two buds	2289·00	723·00	544·00	172·00	10208·56	3393·46	3·01
23 and 24	Each vine trained as a simple goblet or gooseberry bush. Vines pruned to spurs of one bud only	2664·00	827·00	508·50	221·00	9680·00	3123·15	3·09
	Totals	9587·50	3152·00	2029·00	821·50	9822·79	3386·02	2·90

Ninety-four vines in each test. Acre returns calculated on the basis of 605 vines per acre.

B.—Currants.

The six-armed espaliers have given the highest average returns over the four seasons, producing approximately 24lbs. of dried fruit per acre more than the vines trained as cordons on T trellis, these vines being rod and spur-pruned. The spur-pruned single espalier vines produced 230lbs. less per acre than the six-armed vines.

The crops gathered from the various trials differ from season to season in weight of fruit produced, consequently it is too early in the lifetime and development of these vines to pronounce definitely in favor of any one system.

TABLE XXIII.—*Showing the Results obtained in* 1920 *and* 1921 *from the Zante Currant Vines in the Pruning and Training Trials.*

Row No.	Test.	1920.		1921.		Acre Average for 4 Years.		
		Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio.
1 and 2	Each vine trained as an espalier, with one pair of arms. In each alternate vine arms framed upon the bottom and second wires respectively. Vine spur pruned; 56 vines in test	1413·00	568·00	2012·00	717·25	13575·22	4471·44	3·04
3 and 4	Each vine trained as a cordon: the main arm of each alternate vine set upon the bottom and second wires respectively. Vine spur pruned; 56 vines in test	1228·50	517·00	1569·50	646·75	10459·74	4114·13	2·54
13 and 14	Each vine trained as an espalier, with a pair of main arms set upon the bottom and second wires. Vine spur pruned; 56 vines in test	1729·00	619·00	2090·50	598·50	13167·90	4352·76	3·02
15 and 16	Each vine trained as an espalier, with three pairs of main arms, one pair being set upon each wire. Vine spur pruned; 56 vines in test	1834·00	673·00	2200·50	722·00	13793·18	4701·78	2·93
25 and 26	T trellis—Vines trained as espaliers, with one pair of main arms set up on a central wire through trellis post 6in. below T pieces. Vine spur pruned; 53 vines in test	1334·00	505·00	1315·50	531·00	10374·61	3693·35	2·81
27 and 28	Each vine trained as a double parallel cordon, the main arms being set on wires in T pieces, central wire being 6in. higher than side wires. Vine spur pruned; 45 vines in test	1424·50	542·00	1233·00	414·00	10622·68	4126·08	2·57
29	Each vine trained as a cordon. Main arm formed on central wire 6in. higher than side wires. Vine rod and spur pruned; 21 vines in test	773·00	322·00	778·00	225·00	13591·20	4677·94	2·90
	Totals	9736·00	3746·00	11199·00	3854·50	12162·88	4278·43	2·84

The acre returns calculated on the basis of 363 vines per acre.

C.—Sultanas.

The vines trained as Bordelias espaliers, with the canes tied horizontally, have given the best average returns, the vines that were summer-pruned showing an advantage over those that were not. The

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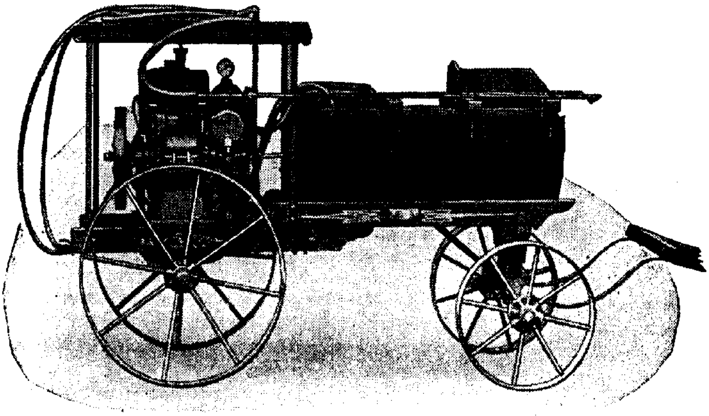

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SPECIAL NOZZLE FOR BLOW-FLY PEST.

summer-pruned vines appear to be slackening off in vigour; interesting data should be obtained from these vines within the next few years as to how long heavy topping of vines can be carried on without direct injury to the health of the plant and its fruit bearing capabilities.

The vines with the fruiting rods tied above the main arms and those with the canes depressed and tied below the main arm, at the present juncture present a puzzling position. The cordon vines, with raised canes, have given an increased yield over the other trials in the matter of fresh fruit. In the dried fruit averages this test has given practically the same weight as the espalier vines with depressed canes. The cordon vine, with depressed rods, shows a heavier yield than the espalier with the raised canes.

TABLE XXIV.—*Showing the Results obtained in* 1920 *and* 1921 *from the Sultana Vines in the Pruning and Training Trials.*

Row No.	Test.	1920.		1921.		Acre Average for 4 Years.		
		Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Fresh Fruit.	Dried Fruit.	Drying Ratio.
5 and 6	Vines trained as cordons, main arm set on centre wire, fruiting rods lifted and tied to top wire. Vine rod and spur pruned; 70 vines in test	976·50	316·50	555·00	223·00	5659·26	1815·23	3·12
7 and 8	Vines trained as cordons, main arm set on centre wire, fruiting rods depressed and tied to bottom wire. Vine rod and spur pruned; 70 vines in test	1003·50	323·00	460·00	185·00	5142·36	1660·39	3·08
17 and 18	Vines trained as espaliers, main arm set on centre wire, fruiting rods lifted and tied to top wire. Vine rod and spur pruned; 72 vines in test	1059·00	338·00	411·50	185·00	4809·19	1527·30	3·15
19 and 20	Vines trained as espaliers, main arm set on centre wire, fruiting rods depressed and tied to bottom wire. Vine rod and spur pruned; 72 vines in test	1214·50	391·00	508·50	206·50	5515·43	1815·93	3·03
30 and 31	Vines being re-formed to cordons on T trellises. Vine rod and spur pruned; 48 vines in test	168·00	56·00	534·50	201·00	3208·75	1104·19	2·90
32 and 33	Vines being re-formed to espaliers on T trellises. Vine rod and spur pruned; 40 vines in test	205·00	65·00	512·00	198·00	3633·47	1257·08	2·89
34 to 37	Vines trained as Bordelias espaliers, fruiting rods tied horizontally. Vine rod and spur pruned; 55 vines in test	1152·00	336·00	591·50	216·50	5924·69	1829·84	3·23
38	Vines trained as Bordelias espaliers, fruiting rods tied horizontally. Vine rod and spur pruned, and summer pruned; 7 vines in test	244·50	67·00	74·00	26·00	8380·50	2437·57	3·42
	Totals	6023·00	1892·5	3647·00	1441·00	5199·97	1678·65	3·09

Acre returns calculated on the basis of 453 vines per acre.

3.—HEAVY-BEARING VINES, VARIETY VINEYARD, AND CINCTURING TRIALS.

A.—Heavy-bearing Vines.—Small crops were gathered from these trials during 1921 harvest, but there was no outstanding feature worth recording here relating to any paricular variety.

TABLE XXV.—*Showing the Returns from the Heavy-bearing Vines in* 1921.

Variety.	Fresh Fruit.	Acre Return.
	Lbs.	Lbs.
Alicante Black (Black Portugal)	69	1252·35
Aramon..............................	26	471·90
Belas Blanco	124½	2259·67
Doradillo	109½	1987·42
Palimeno Blanco	65	1179·75
Pedro Ximenes	25	453·75
Pride of Australia	11½	208·72
Santa Paula	8½	154·27
Sweetwater..............................	23	417·45
Temperano	10½	190·57
Trebbiano	44½	807·67
Ulliade	51½	934·72

Acre returns calculated on the basis of 2,400 sq. ft. per row.

B.—Export Grapes.—The trellising of the Davia, White Almeria, or Ohanez vines on the Spanish method of overhead horizontal trellises is well in hand, and given average conditions we should soon be in a position to further test the exporting of grapes.

C.—Variety Vineyard.—The vines in the table variety vineyard have grown well and most of the vines carried light crops in the 1921 season.

D.—Cincturing Trials.—Some eight short rows containing Sultana and Zante currant vines have been planted for the purpose of further testing the different methods of, and stages of development for, cincturing.

E.—Further Fertiliser Trials.—It is anticipated that comprehensive fertiliser trials will be set out during the 1921 winter with the object of testing the various quantities of commercial fertilisers that can be profitably applied to vines. The vines to be planted will be Sultana, Zante currant, Doradillo, and Muscatel Gordo Blanco.

III.—DATE PALMS.

The date palms continue to grow well, but owing to the scarcity of male blooms, no fruits have been fertilised.

CASTOR OIL PLANTS.

Several varieties of castor oil plants have been set out to test the possibility of producing oil along the Murray Valley.

COTTON.

Several cotton plants were raised from seed procured from the Queensland State Exhibit at the Peace Exhibition held in 1920. The plants grew well, and flowered, but owing to the late planting did not develop mature bolls before the plants were cut down by frost.

OVERHEAD SPRAY SYSTEMS.

The pipe lines in connection with these experiments are now being placed in position. We are expecting the Nunan and Skinner overhead spray irrigation systems will be put in operation during the 1922 season.

DRAINING OF THE SALT PATCH.

The agricultural drain tiles for this work have been purchased, the work of taking the necessary surface and clay subsoil levels is in hand.

ORCHARD NOTES FOR SOUTHERN DISTRICTS.

[By C. H. BEAUMONT, Orchard Instructor and Inspector.]

For effective work it is necessary to keep a coat of arsenate of lead spray on all apples and pears. Apples are scarce this year, therefore, they should have more than usual attention. The price will be better, and it will be easier to thin out the moth.

Watch woolly aphis and keep it in check. Watch for tree borers: if you find any, plug the hole with a small piece of cotton wool dipped in petrol. Then stop the hole with soil or clay.

Young trees and vines should receive special care now; water any that require it and keep soil loose about them all; rub off unnecessary shoots, and see that the trees and vines are tied firmly to stakes, so that the wind will not tear them. Vines should be taken to the trellis as soon as possible, one wire, or two at the most, will suffice for most vines, but three will be necessary for sultanas. Take the vine to the centre wire. The wires for sultanas should be about 2ft., 2ft. 9in., and 4ft. from the ground respectively. This will allow for the most approved system of pruning.

Where big limbs have been removed, very often a dense growth will be found. Rub off all that is not required. The same will apply to trees cut back for budding. Budding may be proceeded with. If any dead limbs should be noticed, cut them out at once; clean the cut and paint with a thick paint. Try grading the fruit as you pick it. Keep an even quality as well as an even size in each case, so that the top layer will be an indication of the whole contents. We must get some damaged fruit, and it should be sold as such and not mixed with the good.

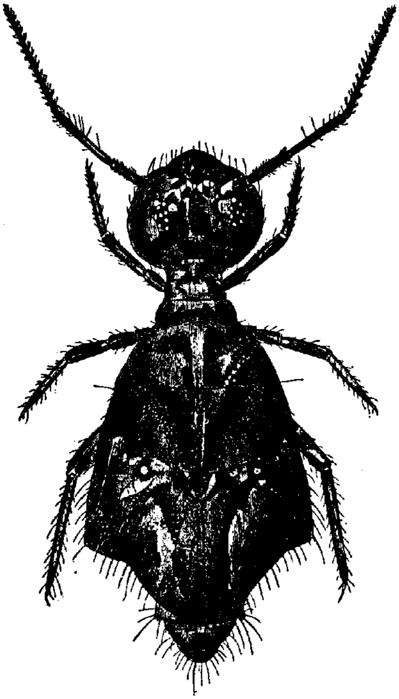
THE LUCERNE FLEA.

(*Smynthurus viridis, Linn.*)

[By Arthur M. Lea, F.E.S., Consulting Entomologist to the Department.]

Communication from the South Australian Museum.

Lucerne growers in South Australia are often troubled by small, hopping insects, which do much injury in winter and spring, being very bad in July, August, and September, when lucerne paddocks often have a speckled or greyish appearance, owing to the great numbers of leaves which have been killed. They disappear with the first spell of hot weather (except in very moist situations), so that between October and April they are seldom in evidence.



The Lucerne Flea.

(From Lubbock's Monograph of the Collembola and Thysanura.)

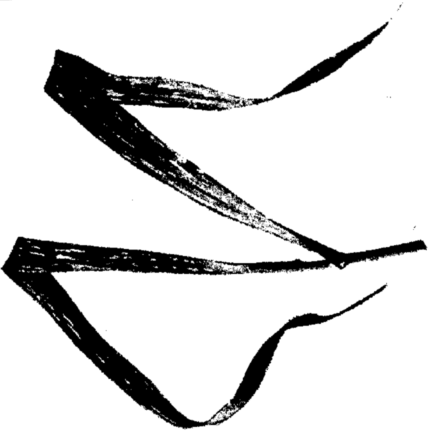
The insect causing the trouble is a small, soft, wingless creature, about one-twelfth of an inch in length, mostly green, but varying through greenish-yellow and yellow to bright orange, usually with an irregular pale stripe on each side of the back, and with the mouth parts yellowish or reddish. To a certain extent it resembles a wingless aphis, but it is without two honey tubes on the upper surface of the abdomen, such as are always present on aphides. It can jump a few inches by means of a forked apparatus on the abdomen; other mature insects that jump usually do so by means of powerful hind legs.

It belongs to an order of wingless insects now known as Collembola, of which Lubbock says they, "with few exceptions, can only live in moist situations, and suffer little from cold; the majority of species frequent fungi, decaying leaves, moss, or loose soil; in fact wherever there is any decaying vegetable matter Collembola may be found in abundance."

The leaves of lucerne are gnawed irregularly, mostly on the under surface, but leaving many of the veins, so that they have a skeletonised appearance. They seldom eat completely through a leaf, but the thin portion left soon breaks across. As the insects feed they void excreta, and this appears as minute blackish pellets, so that the leaves appear as if fly-specked. Feeding is done principally at night, when, if a light is thrown on the leaves, the insects will be seen in thousands feeding on them; during the day they may occasionally be seen feeding on the leaves nearest the ground. They appear always to feed on the lowest leaves available. When a plant for any reason bends over so that the opening leaves touch the ground, these are the first attacked. The stems of lucerne are also attacked, the gnawed parts becoming brown, often with minute cracks radiating from them.

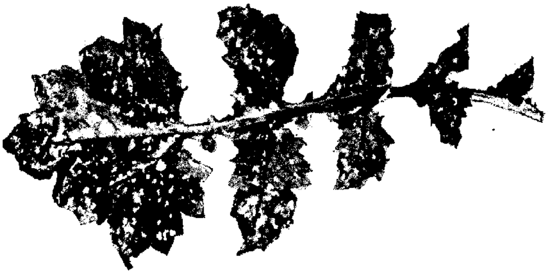
After lucerne, the favorite food plant is the African dandelion or Cape weed, and it is largely by means of this weed that the pest is so widely distributed. On this weed the insects feed solely on the upper surface, and at night; owing to its presence many garden plants are attacked, the thick, fleshy leaves, often flat on the ground, afford them the necessary protection and moisture, and at night they swarm out to feed on it and adjoining plants. In one instance a carnation grower had many plants seriously injured, but on removing the Cape weeds the lucerne fleas also disappeared. Stinging nettles are commonly attacked when near lucerne and Cape weeds, but are seldom attacked when distant from those plants. Other plants attacked are peas, beans, potatoes, oats, barley grass, and other grasses.

It is curious that Lubbock speaks of it as "Very common among grass" and "Common in Kent on pieces of wood and bark in damp situations," nowhere mentioning it as a pest of leguminous plants. Partly for this and for other reasons, I was not satisfied with the identification of the species as *Smynthurus viridis*, so sent specimens to Signor F. Silvestri, in Italy, who has spent much time on the order Collembola, and he confirmed the name. It would almost seem that, like the blowfly and rabbit, the insect has made some changes in its habits to fit the altered conditions in Australia. There is no record as to when it first appeared in Australia, but it probably came out in fodder or in damp straw packages, as it is a widely distributed insect in Europe.



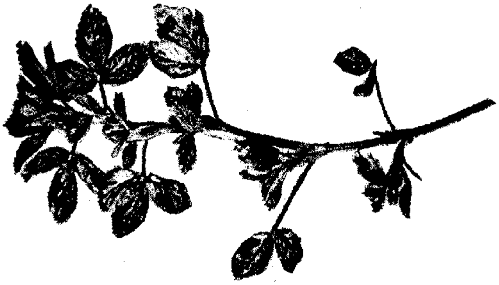
Grass.

[Photos. by E. W. Pritchard.



Cape Weed.

SHOWING DAMAGE BY LUCERNE FLEAS.



Lucerne.

It produces eggs, these being laid on the ground. The young when first hatched resemble the adults on a miniature scale, and do not undergo distinct metamorphoses as do most insects.

The insect is a dumpy-looking creature, almost as deep as long. When examined under the microscope the head appears obtusely pointed at the mouth, with the jaws entirely concealed, and to see them the head must be dissected. The jaws, as figured by Lubbock, show a small pointed apex used for piercing, and near it a roughened surface used for grinding; they are in fact used as gnawing or rasping instruments, not for biting as with caterpillars, beetles, &c., or for sucking as with bugs, aphides, &c. There are two black eyes on top of the head and these are each composed of eight ocelli (or eye spots) crowded together, not faceted or compound eyes as with most insects. To the naked eye they look like two small, intensely black spots. The antennae, or feelers on the head, are four-jointed, but the apical joint has numerous constrictions, so that at first glance it appears to be composed of numerous closely fitted joints. There are six rather thin legs, each terminated by two unequal claws that look like minute splinters of glass. In bulk the abdomen is about two-thirds of the entire insect, and the appendage by which it can leap is attached to the body by a short basal piece, to which are attached two jointed processes (equivalent to the anal cerci of many insects). In repose these are carried along the under surface of the abdomen and fasten to a small "catch" near the base, but in preserved specimens they project backwards and upwards. The abdomen also has a curious process, which may be extruded with a drop of moisture, so as to attach it as a kind of sucker to its food plants. Scattered over the body are a few hairs or bristles, becoming more numerous and shorter on the legs.

Lucerne fleas are eaten by several species of ladybird beetles and by larvae of syrphus flies, but these insects are much less abundant in winter than in the warmer months, so that they do not appreciably diminish the pest in numbers. As yet I have not reared any parasitic *Hymenoptera* from them, but this is probably due to the fact that it is difficult to keep them in confinement as they soon die if not kept continually moist. Lubbock mentions that in England it is sometimes attacked by a small, red mite, but this I have not seen, although red mites are common enough on many insects in South Australia.

The insects can be readily destroyed by spraying. Feeding on the outer parts of the leaves or stems as they do any arsenical poison that is sprayed on these would be eaten, and so the insects destroyed; but as in their feeding numerous wounds are made on the leaves, the poison would be liable to enter the inner parts of the leaves and to kill or scorch them, so that arsenical poisons should be used at the minimum strength found to be efficacious. Sprays, such as hellebore, or soap and tobacco, should also be of use, as whilst insecticidal they are not actively poisonous to foliage. Oil emulsions could also be used with effect, but these, as with all contact sprays against the pest, should be used at night when the insects are actively feeding.

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TRACTORS.

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HE FIRST REPORT OF THE DAIRY HERD OF AYRSHIRE COWS AT KYBYBOLITE EXPERIMENTAL FARM.

October 1st, 1921, to September 30th, 1922.

[By L. J. Cook, Manager.]

A few years ago some good types of pedigree Ayrshire and grade Ayrshire cattle were purchased from various noted studs in Victoria for the Kybybolite Farm, as the nucleus of a herd to test the possibilities of the district for dairying. The natural climatic conditions led to the choice of this hardy Scotch breed of milking cows, and they have so far undoubtedly proved that they can withstand the comparatively cold and wet winter conditions very well, and their natural habit as good foragers enables them to secure the most from the gradually improving pastures of Kybybolite.

It is proposed in this report to deal solely with results obtained from young cows bred and reared on the farm, and which, therefore, have known no other conditions than those existing at Kybybolite. We now have a fairly complete dairy plant equipment, including milking machines, feeding and housing shed, one 90-ton silo, and dairy for handling milk, cream, &c., sufficient for us to give the herd reasonable treatment. Careful records of milk supply, tests, and feeding have been kept continuously for 12 months.

Table I. shows the monthly production for all cows in the herd that were bred and reared at the farm.

TABLE I.—*Statement showing Total Production by Ayrshire Cows (bred and reared at Kybybolite Experimental Farm) for Twelve Months ending September 30th,* 1922.

Month.	Average Cows under Test.	Average Cows in Milk.	Average Butter-fat Test.	Milk.		Butter.	
				Produced by Herd.	Per Cow.	Produced by Herd.	Per Cow.
1921-22.	Cows.	Cows.	Per cent.	Lbs.	Lbs.	Lbs.	Lbs.
October	6·6	6·6	4·27	4716·5	714·62	199·76	30·27
November	7·1	7·1	4·47	4344·5	611·90	194·10	27·34
December	8·0	8·0	4·57	4037	504·62	175·54	21·94
January	9·0	8·0	4·15	4548	505·33	186 67	20·74
February	9·0	8·0	4·24	3372	374·67	140·81	15·65
March	9·45	9·0	4·04	3515·5	372·01	141·71	15·00
April	10·0	8·83	4·65	3394·5	339·45	156·14	15·61
May	10·0	7·16	4·45	2921·5	292·15	128·01	12·80
June	11·76	8·27	4·41	5467·5	464·92	239·16	20·34
July	13·0	9·58	4·44	6553·5	504·11	282·28	21·71
August	13·93	9·81	4·39	7468	536·11	324·04	23·26
September	14·00	11·00	4·22	6928	494·86	281·72	20·12
Means	10·15	8·45	4·36	—	5,714·75	—	244·78
Total production for year	—	—	—	57,266·5	—	2,449·94	—
Average daily production	—	—	—	156·9	15·45	6·7	0·67

It must be noted that this result is practically obtained solely from heifers on their first lactation period, as only one cow has as yet completed her second period. The comparative low average return for the late summer and autumn months revealed by the table is due partly to our lack of green leguminous feed at this time, but mainly to most of our heifers drying off at this period. Also, one heifer that calved in March failed absolutely to produce milk, and until disposed of she must necessarily be counted as a member of the herd. However, the average return per cow of 571galls. of milk and 245lbs. of butter fat cannot but be looked upon as comparatively satisfactory for young cows.

The disposal of our dairy products at present is perforce practically confined to the sale of cream for butter making, and the utilising of skim milk in pig raising. For the first six months of the period under review butter prices were very low, and the actual average price received at the farm for each month is as follows:—

	Per Lb. s.	d.
October	0	9.49
November	0	9.13
December	0	9.78
January	0	9.59
February	0	11.21
March	0	11.84
April	1	3.84
May	1	6.07
June	1	5.42
July	1	4.52
August	1	3.21
September	1	3.43
Mean	1	1.3

An average price for the year of 1s. 1.3d. per lb. is low. Allowing for 15 per cent. over-run, we find that we received 2,817lbs. commercial butter from the young cows under review. This at 1s. 1.3d. equals £156 2s. 2d. Adding the value of skim milk, 5,236galls. at 2d. equals £43 12s. 8d., makes a total value of £199 14s. 10d. received from the 10.15 cows (average number in the herd for the 12 months), or a return in cash of £19 13s. 7d. per cow.

A careful record has been kept of feed supplied to the cattle on the farm, and the average quantities fed to each milch cow, together with fair estimated values, are shown in the next table.

Table II.—*Average Feed consumed per Milk Cow at Kybybolite Experimental Farm for Twelve Months ending September 30th,* 1922.

Quantity.	Variety.	Price.	Value. £	s.	d.
11cwts. 3½qrs.	Hay chaff at	£3 per ton	1	15	7½
2 tons 16cwts.	Ensilage at	15s. per ton	2	2	0
10·8bush.	Bran at	£8 12s. 6d. per ton	0	18	7
24bush.	Oats (crushed)	3s. per bush.	3	12	0
15·4cwts.	Greenfeed	10s. per ton	0	7	8½
4 acres	Pasture at	4s. per acre rent	0	16	0
Total value feed per cow			£9	11	11

During the year the herd was necessarily a good deal hand fed to supply concentrates and make good the shortage on the pastures. The foods used were almost wholly produced on the farm. The little bran was the only purchased feed, and this was given during the latter months of 1921, when the supply of oats on the farm had run short. Crushed grain was fed as concentrates to all milkers during the rest of the period, the quantity fed varying with the quantities of milk produced by the cows individually. On account of the ravages of caterpillars the supply of oats was again short this year, and for the last three months of the period a mixture of crushed grains, including wheat, oats, and peas, was fed, in proportion to conform to a complete balanced ration, as outlined by the Director of Agriculture (Professor Arthur J. Perkins).

However, as oats are the cheaper grain, and the one that ordinarily would be used, all grain fed was equal, weight for weight, to 24bush. oats, as showing in above table.

To provide bulk feed a small proportion of hay chaff was fed during the flush of the green feed in the spring and early summer. As soon as the supply of green feed failed recourse was had to the ensilage, made from green cereals. Green barley and oats were fed to the herd as soon as available in the early winter, and hay chaff was fed with the silage during the winter months. A small plot of lucerne, growing without irrigation, provided a few tons of green feed for the summer months, and also a little green maize was fed.

The pastures available during the year, other than natural, consisted of a fair growth of crimson clover in the spring, and green oats and barley in the early autumn and winter.

Approximately the milking herd obtained half their bulk feed from growing pastures during the year. Calculating that ordinary pasture of the district carries at the rate of three-quarters of a sheep, or 75lbs. live weight of stock per acre, and allowing 600lbs. as the average live weight of young cows, I have, therefore, allowed an estimated acreage of four per cow for pasture. Hence I have charged the nominal rate of 4s. per acre as rent against each cow.

During the winter, from May 1st to September 30th, all milk cows were housed overnight.

The following is a list of individual records of the cows, in order of merit, that have completed a nine months' lactation period during the year:—

Table III.—*Showing Returns from Individual Cows that Completed Lactation Periods of* 273 *days between* 1/10/21 *and* 30/9/22.

Name.	Type.	Age.	Milk.			Butterfat.	
			Last Day of Test.	Means per Day.	Total.	Mean Per Cent.	Total.
		Years.	Lbs.	Lbs.	Lbs.		Lbs.
Cows on first lactation period—							
Countess of Kybybolite	Ayrshire	2¼	13	22·20	6,060	4·59	278·23
Pansy	Ayrshire grade.	2¼	6½	19·94	5,444	4·24	230·70
Ruby of Kybybolite .	Ayrshire	2	6½	19·05	5,201	4·33	225·42
Blanche of Kybybolite	Ayrshire	2½	8	18·04	4,925	4·28	210·89
Lola	Ayrshire grade.	2¼	12	16·88	4,607	4·29	197·78
Maggie of Kybybolite	Ayrshire	1¾	11	17·95	4,900	3·99	195·63
Lily...............	Ayrshire grade.	2½	2½	14·73	4,022	4·34	174·56
Lady of Kybybolite..	Ayrshire	3¼	2	14·73	4,020	3·81	153·21
Means for cows on lactation period.	—	—	—	17·94	4,897	4·23	208·30
Cow on second lactation period—							
Duchess of Kybybolite	Ayrshire	3¼	—	15·29	4,175	4·88	203·68

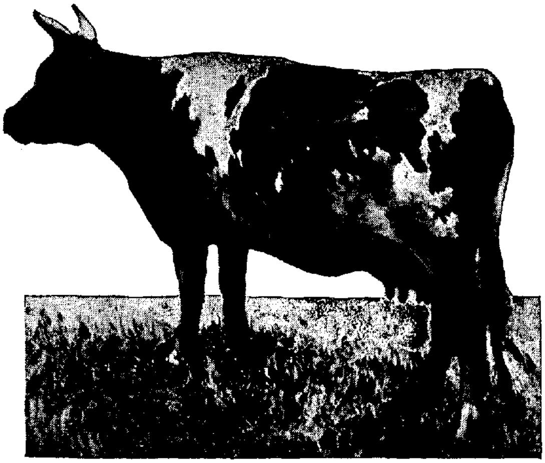
Besides these nine cows, one heifer proved practically a complete failure, giving very little milk, and remaining in milk less than two months. This cow has necessarily had to be included in Table I., and has considerably reduced the average yield.

It is of interest to note that all the cows in the above table have been sired by the one bull, "Anthony of Gleneira," the foundation sire of our herd, who came from the Gleneira stud, of Flinders, Victoria.

By referring to the "Standard Herd Test," part 9, volume XIX., of the Victorian *Journal of Agriculture,* evidence will be seen that some of Anthony's heifers, sired before he came to us, are holding their own amongst the Ayrshires of Victoria.

We hope in the future to issue an annual report on the results of our dairy herd, and our aim will be to improve the quality of the feed by fostering the growth of clovers, lucerne, and other legumes. Improved feed, coupled with the rigid culling of all unprofitable cows, should lead to a handy profit being shown from a dairy herd, run in conjunction with a herd of pigs.

Finally, I wish to eulogise the work of the stockman, Mr. A. R. Rowe, who has been most careful in handling the herd and recording the milk yields and tests.



A Specimen of the Heifers constituting the Herd of Ayrshire Cattle on the Government Experimental Farm, at Kybybolite.

VISITING DAY AT KYBYBOLITE EXPERIMENTAL FARM.

Despite a shade temperature of well up to the century, some 80 to 90 farmers, representing the Mount Gambier, Moorak, Glencoe, Penola, Frances, Naracoorte, Kalangadoo, and Kybybolite Branches of the Agricultural Bureau spent Wednesday, November 29th, touring the Government Experimental Farm at Kybybolite. The farm, which contains about 1,000 acres of land, adjoins the Kybybolite railway station. The majority of visitors arrived by train, and immediately set out on their tour of inspection under the guidance of the farm manager (Mr. L. J. Cook). The first item to which the attention of the party was directed was the large assortment of summer fodders. These had germinated well, and despite the absence of rain during the past three weeks, had made really good growth. Sunflowers and maize were outstanding. Turnips also showed strong and healthy development. A fall of rain in the near future should ensure a good stand of practically every type of fodder crop under cultivation on the farm, with the possible exceptions of kale, silver beet, and mangolds, which had not germinated so well as the others. The Norfolk four-course rotation had been carried on in experimental tests, and peas in this rotation, which were being fed to dairy cattle, had made outstanding growth and provided an abundance of feed. Of the many clovers tried, the three most noteworthy were Subterranean, Alsike, and Crimson. The first-named had completely covered the ground with a dense mass of growth. The Alsike clover, which was in its second year of growth, had practically excluded all other vegetation from the area on which it was sown, and gave promise of being a most useful addition to the pasture plants of the district. The Crimson clover had been fed heavily during the last two months, despite which it showed good growth, which was being left to ripen seed. An acre plot of Wimmera rye grass had grown to a height of about 2ft., and was particularly dense. The lucerne under irrigation, which prior to the first cut being taken a week or so ago, had grown to a height of 2ft., was making an excellent second development.

The most noteworthy feature of cereal cultivation on this farm appeared to be the increased yields which were secured after the land was dressed with lime. Although the cereals generally in the district were promising only average yields, the wheat and oats on limed land on this farm gave every indication of heavy returns. Especially was this noticeable on a badly-drained field, which had been ploughed in ridges 17ft. 6in. apart. That particular field was under Queen Fan, White Essex, and Leak's Rust Proof varieties, and was estimated by visitors to yield 30bush. or over to the acre. The crop stood 4ft. 6in. in height, and was quite free from take-all or other diseases. Peas sown on limed areas and intended for grain had made good growth, and podded well. Barley sown in August also gave indication of more than average yields.

Some of the Agriculturists who attended the Annual "Visiting Day" at the Government Experimental Farm, Kybybolite. on Wednesday, November 29th, 1922.

The plots on which the natural pastures were being treated with raw rock phosphates (local and imported), lime, and superphosphate, were being grazed by the ewes and lambs. More than ordinary interest was taken in these tests by the visitors, who seemed impressed with the possibilities of this method of increasing the carrying capacity of the natural pastures in the South-East. The plot dressed with lime and superphosphate was outstanding both from the point of view of quantity and quality of feed produced.

An area of approximately 10 acres, graded and sown to maize and sorghum and irrigated from underground water supplies, came in for considerable attention. The crops had been sown four weeks ago. The maize had germinated well, and had reached a height of 6in. The water was secured from a 40ft. well, from which it was raised with the aid of a centrifugal pump, delivering 1,200galls. per hour. It was distributed by means of a head-ditch of concrete and delivered down the rows in plough furrows. At the time of the visit red gum was being put in with the object of testing the local timber as a substitute for concrete for head-ditches.

The stock on the farm included a herd of dairy cattle, principally pure-bred Ayrshires, with a few Ayrshire Grades. These had been under continuous test during the past year, and each cow's record was displayed at the milking sheds for the information of the visitors. The herd included stock from the principal herds of Victoria. The sires being used at present were "Anthony of Gleneira" and "Royalty of Kybybolite." The former was bred by Mr. Andrew Buchanan, of Flinders, Victoria, and the latter by Mr. R. J. Clements, of Gawler. The sheep consisted of a pure-bred English Leicester stud, headed by a ram bred by Mr. W. S. Kelly, of Giles Corner. There were also Leicester-Merino crossbred ewes on which pure-bred English Leicester rams were being used. The pig stock on the farm was confined solely to the Mid-York breed, of which there were about 20 breeding sows.

Twelve acres were under orchard. The greater area was planted with export varieties of apples, principally Cleopatra, Jonathan, and Dunn's Seedling. A heavy crop of fruit had set, and the trees had a healthy and well-kept appearance.

Visitors were the guests of the farm at lunch and afternoon tea. At the instance of Mr. W. Manser (President of the Mount Gambier Branch of the Agricultural Bureau), seconded by Mr. F. A. Holmes (Naracoorte Branch), visitors accorded a hearty vote of thanks to the Department of Agriculture, the Farm Manager (Mr. L. J. Cook), Mrs. Cook, and the domestic staff who assisted in the catering. The thanks of the visitors were acknowledged by the Manager (Mr. L. J. Cook) and the Secretary Advisory Board of Agriculture (Mr. H. J. Finnis).

MT. GAMBIER AND DISTRICT HERD TESTING ASSOCIATION.

RESULTS OF BUTTERFAT TESTS FOR AUGUST, 1922.

Herd No.	Average Cows in Herd.	Average Cows in Milk.	Milk.		Butterfat.	
			Per Herd during August.	Per Cow during August.	Per Herd during August.	Per Cow during August.
			Lbs.	Lbs.	Lbs.	Lbs.
2/A	20	13·19	11,708·5	585·43	485·61	24·28
2/B	7	5·03	6,642	948·86	281·18	40·17
2/C	20	18·16	17,636	881·80	709·70	35·49
2/D	13	10·35	8,068·5	620·65	308·80	23·75
2/E	11	8·45	7,156	650·55	315·70	28·70
2/F	20	12·90	13,668·5	683·43	560·15	28·01
2/G	3	3	3,038	1,012·67	137·49	45·83
2/H	25	20·42	15,193	607·72	643·84	25·75
2/I	15	6·48	6,608·5	440·57	255·02	17·00
2/J	13	8·87	9,611	739·31	414·12	31·86
2/K	20	15·29	11,164	558·20	495·48	24·77
2/L	33	22	15,085·5	457·14	635·54	19·26
2/M	65	53·61	37,013	569·43	1,539·75	23·69
2/N	16	7·19	5,499·5	343·72	211·08	13·19
2/O	38	32·71	19,295	507·76	755·83	19·89
2/P	15	12·61	8,196·5	546·43	334·95	22·33
2/Q	33	23·35	20,263	614·03	808·96	24·51
2/R	16·19	8·65	8,014	495·00	351·78	21·73
MEANS	21·29	15·68	12,436·69	584·20	513·61	24·13

RESULTS OF BUTTERFAT TESTS FOR SEPTEMBER, 1922.

Herd No.	Average Cows in Herd.	Average Cows in Milk.	Milk.			Butterfat.		
			Per Herd during Sept.	Per Cow during Sept.	Per Cow August to Sept.	Per Herd during Sept.	Per Cow during Sept.	Per Cow August to Sept.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
2/A	20	17·63	15,975	798·75	1,384·18	654·20	32·71	56·99
2/B	7	6·80	9·314	1,330·57	2,279·43	375·00	53·57	93·74
2/C	20	20	18,315	915·75	1,797·55	696·91	34·85	70·34
2/D	13·23	10·87	6,771	511·79	1,132·44	259·54	19·62	43·37
2/E	11	9	9,300	845·45	1,496·00	395·94	35·99	64·69
2/F	20	19·13	18,763·5	938·18	1,621·61	712·91	35·65	63·66
2/G	3	3	3,030	1,010·00	2,022·67	134·46	44·82	90·65
2/H	25	23·63	18,978·5	759·14	1,366·86	752·47	30·10	55·85
2/I	15	9·80	10,100·5	673·37	1,113·94	419·43	27·96	44·96
2/J	13	12	12,916·5	993·58	1,732·89	508·41	39·11	70·97
2/K	19·07	12·33	11,367	596·07	1,154·27	488·52	25·62	50·39
2/L	33	25·80	19,929·5	603·92	1,061·06	904·49	27·41	46·67
2/M	63·60	54·97	35,766	562·36	1,131·79	1,417·99	22·30	45·99
2/N	15	12·40	7,861·5	547·01	890·73	324·03	22·48	35·67
2/O	43	33·43	19,194	505·41	1,013·17	798·19	16·25	36·14
2/Q	33	29·77	24,830·5	752·44	1,366·47	967·32	29·31	53·82
2/R	16	14·47	15,411	963·19	1,458·19	625·65	39·10	60·83
Means	21·76	18·53	15,283·74	702·42	1,284·54	613·85	28·21	52·26

RIVER MURRAY HERD TESTING ASSOCIATION.

RESULTS OF BUTTERFAT TESTS FOR AUGUST, 1922.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during August.	Per Cow during August.	Per Cow October to August.	Per Herd during August.	Per Cow during August.	Per Cow October to August.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1/A	13	11·94	9137·5	702·88	6556·00	446·85	34·37	307·51
1/C	30	24·13	27066	902·20	8043·81	1058·65	35·29	326·46
1/E	15·71	11·87	7302	464·80	5871·53	361·94	23·04	266·56
1/G	50·81	40	39842	784·14	8876·48	1489·96	29·32	341·78
1/I	12·45	8·97	6427·5	516·27	6723·18	275·68	22·14	288·33
1/J	16·26	10·84	6058	372·57	5677·79	287·26	17·67	265·62
1/K	14	11·42	10943	781·64	6642·10	453·14	32·37	293·87
1/L	16	14·45	9321·5	582·59	5585·10	436·85	27·30	268·64
1/M	17·68	10·35	6673·5	377·46	5023·36	315·73	17·86	236·53
1/O	39·87	30·97	22399	561·80	5399·07	1013·89	25·43	253·32
1/R	22	17·29	9747·5	443·07	4185·06	423·54	19·25	206·87
1/S	12	7·94	6723	560·25	5386·03	286·91	23·91	237·68
1/T	14	10·58	5567	397·64	5157·39	278·63	19·90	258·55
1/U	12	10·45	7168	597·33	7302·06	312·53	26·04	331·06
1/V	15	10·90	4410·5	294·03	5056·42	213·51	14·23	233·78
Means	20·05	15·47	11919·07	594·41	6402·66	510·34	25·45	280·61

RESULTS OF BUTTERFAT TESTS FOR SEPTEMBER, 1922.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during September	Per Cow during September	Per Cow October to September	Per Herd during September	Per Cow during September	Per Cow October to Septemb
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1/A	13·97	12·97	9122	652·97	7208·97	441·61	31·61	339·12
1/C	30	27·13	28174·5	939·15	8982·96	1071·38	35·71	362·17
1/E	13	10·60	8261	635·46	6506·99	381·06	29·31	295·87
1/G	51	37·80	37225·5	729·91	9606·39	1399·95	27·45	369·23
1/I	12	10·13	9408	784·00	7507·18	355·42	29·62	317·95
1/J	18·20	10·67	6824	374·95	6052·74	302·23	16·61	282·23
1/K	14	11·40	9330·5	666·46	7308·56	417·84	29·85	323·72
1/L	14·67	13	9292·5	633·44	6218·54	411·53	28·05	296·69
1/M	19·67	11·67	7545	383·58	5406·94	364·94	18·55	255·08
1/O	39	32·53	22867	586·33	5985·40	1052·69	26·99	280·31
1/R	22	17·43	8727·5	396·70	4581·76	403·37	18·64	225·51
1/S	12	8·50	7275	606·25	5992·28	365·53	30·46	268·14
1/T	12·67	9·80	5596	441·67	5599·06	292·34	23·07	281·62
1/U	12·57	9·03	6065	482·50	7784·56	276·63	22·01	353·07
1/V	15	5·60	3045	203·00	5259·42	148·08	9·87	243·65
Means	19·98	15·22	11917·23	596·36	6999·48	512·31	25·64	306·24

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

THIRTY-THIRD ANNUAL CONGRESS.

(*Continued from page* 346.)

PIGS AND THEIR MANAGEMENT.

Wednesday morning's session was commenced with the following paper by Mr. W. J. Marshman, of the Owen Branch:—

The remarkable advance during the last few years of the dairying industry has frequently led to the question being asked, why the breeding and rearing of pigs has not progressed in similar proportion? The two industries are inseparable, and neither one can be carried on with the maximum results in profits without the other.

Pigs multiply at a higher rate than other domestic animals, and it is quite possible to fatten them more cheaply, and to market them at an earlier age. Periodically glutted markets, low prices, and the absence of a regular and well-established export trade, are the only reasons that can be given in reply to the opening question.

We have without doubt one of the finest countries in the world for the raising of pigs. Our climatic conditions, and the possibilities of growing cheap pig feed, are such that there is room for our pig industry to go ahead by leaps and bounds. Hundreds of thousands more pigs could be raised and marketed, thus giving employment to many and increasing our railway receipts, besides putting money into the pocket of the producer.

Frequently we hear the cry "Produce, produce!" Unfortunately, in this direction there are limits to our production, and what ought to be one of the largest and best-paying industries in our State is hampered and curtailed for the want of an outlet for our produce.

Denmark, in her splendid organisation, stimulated by an admirable spirit of co-operation amongst producers, points to us the splendid possibilities in Australia. America, with her millions of hogs, her great bacon factories, and huge packing departments, giving employment to thousands, ought to be an example for us to follow. In a word, the Dane and the Yank can beat us hands down and crawl all over us. It is a crying shame that this is so. Throughout the world there is an unlimited and ever-expanding market for bacon, ham, and pork. With a finer conception of the demands of the public, the supply of a more even and superior flavored flesh, involving keener attention to breeding and feeding, the flesh of the pig in its various forms is becoming more popular as an article of diet.

Many small landholders who have not the run for raising lambs and beef have ample scope for rearing a few litters of pigs for bacon, were they sure of ready sales at fair prices. We are told there is an unlimited market in the form of an export trade to London alone; then why do we not try it?

There are many points to be realised by our pig breeders to place them in a position to take up this industry with a prospect of success. Prejudices have to be overcome, and breeders must be brought to realise that the same amount of forethought, care, and attention must be given to the pig as to any other animal about the farm. One frequently hears the remark, as dirty as a pig. Gentlemen, the pig is just as dirty as we make him. The man who keeps a pig confined in a so-called pen a few feet square, with the draught and the rain pouring in, with slush up to his belly and never a clean dry spot to lie down in, ought to be made to spend a night alongside the pig in order to become better acquainted with the pig's discomforts.

In the successful raising of pigs, good breeding is absolutely essential, irrespective of type. If one can produce three-cornered cattle, well, it is just as easy to produce pigs with nothing but corners, bellies, and squeal. Cut out the mongrel crossbred sire. No man can ever hope to become a successful breeder of pigs who does not select the best of sires. Unfortunately, here in South Australia our choice of pure-bred animals from pedigreed stock has been very limited in the past. Nevertheless, good sires can be obtained, and these will more than repay for the small extra cost in procuring them.

Now a word about the breed of pigs or the best breed to keep. Of the modern breeds the most suitable and most popular are Blacks:—Berkshire, Large Black, Poland China; Whites:—Large and Middle Yorkshires; Red:—Tamworths—all British breeds except the Poland China, which is supposed to have been first developed in Ohio, United States.

Of the six breeds mentioned, the Berkshire is undoubtedly the most popular in Australia at the present time. This may be attributed to the facility with which it has become acclimatised in every part of the Commonwealth, and the high returns it provides for both bacon and pork. Owing to its great muscular power, vitality, its constitutional vigor, and marked tendency to resist disease, as an all-round pig for the farmer it properly occupies first place. In England in some quarters just now the Large Black is said to be becoming popular and to be taking the lead, on account of its very fine quality flesh and bacon. But until such times as we are able to ship large quantities of bacon to the Old Country and become better acquainted with their requirements, I think I am quite safe in saying there is no better pig in the Commonwealth than the Berkshire.

That there is ample opportunity to improve the existing types of pigs throughout our rural districts is evidenced by the class of stock that so frequently find its way into our country and city markets. Every imaginable cross possible presents itself—Razorbacks; Chargers, with noses like lances; some with hair like porcupine's quills; others resembling the type of a greyhound. The time has come when all this motley conglomeration of breeds must be eliminated, and the utmost care and intelligence must be displayed in establishing that quality of pig that conforms to or will meet the ever-increasing demands of a thriving trade.

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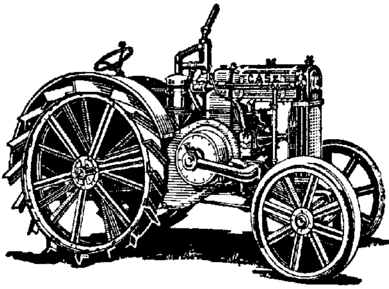

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The cardinal principle therefore involved in successfully establishing a piggery is the selection of the animals. As with the breeding of dairy cattle the bull unquestionably occupies first place, so the same principle applies to the successful raising of pigs—the boar should receive our first consideration. Quite 75 per cent. of success obtainable in pig breeding is due to the superior qualities of the boar, as he has in a more marked degree the power to transmit to his progeny those strong points and qualities he himself may possess. When selecting a boar, one should be chosen with head wide and deep between the eyes and ears; the eyes bright and lively; neck moderately wide and deep, somewhat short, fairly thick and muscular; the ribs well sprung and deep; the loins wide and thick; flanks deep and full; the back level or may be very slightly arched; quarters long and straight from tip to tail; hams large, full, and wide, and well let down on the thighs; legs straight, fine and wide apart, and planted firmly on the outside of the body, with short pasterns; bone flat and fine; skin smooth, clean, firm, and scurfless; hair bright, fine, not too long, without mane or bristles along neck and shoulders. Avoid coarseness in hair, for generally it denotes coarseness of flesh. The muzzle should be fine, carriage easy and active, giving a lively and animated appearance and a general smoothness and symmetry of outline. The animal should be selected from a large even litter, if possible, and should be of a tractable disposition.

Let him under favorable conditions reach the age of from eight to twelve months before allowing him to serve the sows. The boar should possess an evenly placed number of from 12 to 14 embryo teats, especially if the object is to raise pedigreed litters for sale for breeding purposes.

Next in importance comes the selection of the sow. Where the breeder caters for the supply of meat to the butcher or the market, the market demands, with all their profitable attractions, must be steadily kept in view. Definite characteristics are sought for, such as early maturity, length in frame, broad and well-let-down hams vigorous and robust habits; well-set shoulders in a sow not too broad on top are essential. The progeny, generally speaking, are attractive from their first appearance.

The conditions essential for breeding animals for stud purposes are more complex and entails a wider range of attention.

The young sow before she has had her first litter is called a yelt. She should be nearly 12 months old before being sent to the boar. Breeding from very young sows results in arresting the growth and development of the mother and producing litters small, undersized, and weaklings. Sexual heat in sows will last from two to three days. and will recur every 21 days. The gestation period is about 16 weeks, or 112 days. Sows intended to be sent up to the boar should never be overfat. Many sorry mistakes are made by some pig-breeders in this respect.

After 14 years' experience in pig breeding, I have found the paddock system the best to adopt for the breeders. Give the sows plenty of exercise and good grazing, never allowing them to become much more than strong store conditioned. Bring the sows in about a fortnight before farrowing time to get used to their maternity quarters. Provide them only with sufficient short bedding, and have a rail running round the sty about 9in. from the level of the floor. The mother is then not so likely to lie on or crush the young pigs. Avoid giving your sows brought in to farrow food that will tend to give them constipation. Unless you are an expert do not go in for line breeding; the pig of all animals will manifest the ill-effects of inbreeding.

Now just a word on the feeding of pigs. Feeding depends upon well-defined general principles, and the pig, like other animals, requires a well-balanced ration. Foods containing albuminoids, protein, or nitrogenous substances, carbohydrates, fat, and mineral ash, are all necessary in the building up and development of healthy, vigorous, well-conditioned pigs. Nitrogenous substances are needed for forming the gelatinous parts of the bones, tendons, horny matter, muscles, &c. Carbohydrates are the primary sources of heat and energy, and are associated with foods as starches, sugars, gums, etc. Fats and oils are also energy and heat producers. It is estimated that fats provide two and a fourth times as much heat as carbohydrates. Mineral ash is largely composed of lime and phosphoric acid.

Most of the cereal grains grown on the farm make excellent food for pigs, and contain the necessary albuminoids, carbohydrates, fats, and ash. Oats are rich in fats, supplying abundance of heat, and make quite good pig feed, but should not be fed alone. Add a little crushed wheat or pollard. Oats should never be fed dry. They should be rolled and soaked. In the production of pork and bacon barley is perhaps one of the best of all grains. It should be crushed and soaked, or soaked whole and fed with skim milk. Wheat is admirably adapted for pig feeding. It is of a higher starch value than oats or barley. It should be soaked or crushed and mixed with barley. Peas are excellent, especially for topping off. They are rich in proteids of a readily digested character, also phosphates and lime. They assist also in the forming of bone and flesh material in growing pigs. Rye is said to be similar in composition to wheat and almost equal to barley for pork production.

In any and every part of our State where any of the cereals mentioned can be grown, with the additions of skim milk, potatoes, green lucern, green barley, melons, pumpkins, turnips, &c., pigs can be raised successfully, either to sell as good stores for topping off, or for the production of the finished article.

Much more could be said upon the subject before us, but I trust enough has been said to arouse at least a little enthusiasm in one of the greatest and most profitable of industries awaiting future development.

Discussion.

Mr. J. Rundle (Yacka) expressed the opinion that pig raising was one of the most neglected industries of the State. Until the producers were able to supply the proper class of bacon they would never be able to capture the overseas markets. The type of pig used for the bacon export trade at the present time was not acceptable to the English buyers. He considered a cross between a Mid-York boar and a Berkshire sow to be the most suitable breed for the English market, although that cross produced anything but a handsome pig. Mr. W. Haynes (Georgetown) expressed the view that the registration of boars would prove a useful step in setting the industry on a better footing. He had grown barley, fed it to the pigs, and it had returned 6s. 8d. per bushel. The Director of Agriculture (Professor Arthur J. Perkins) congratulated the writer on the very fine paper that he had submitted to Congress, and said he was almost sick of referring to the necessity for establishing an overseas market for pork, and further, he believed that such a market would never be obtained unless the producers took the matter into their own hands and forced the issue. The Director said he could not agree with the statement that the pig raising and dairying industries were inseparable. The pig could be raised profitably on almost any farm, provided an outlet was provided for the product.

THE LUCERNE FLEA.

In the course of a short address dealing with "The Lucerne Flea," the Government Entomologist (Mr. A. M. Lea) said the insects were very common during winter and spring, and gave the lucerne paddocks a speckled and grey appearance. They disappeared with the advent of summer. There was no record of when the pest first appeared in Australia, but it was probably brought in fodder straw packages. The insect was widely distributed in Europe, and bred by means of eggs. The insects which ate the flea—ladybird, beetles, and certain kinds of flies—were not numerous enough in the winter to keep the pest down. Arsenical sprays were effective, although it was liable to enter the inner part of the leaves and kill them, while oil emulsion could be used at night time.

THE DRIED FRUIT MOTH.

The Government Horticultural Instructor (Mr. Geo. Quinn) delivered an address, in which he dealt with the dried fruit moth. Definite action, he said, had been taken in the matter at Waikerie, and it was fully discussed at a Conference of River Murray Bureaux held at that town recently. The infestation of fruit, it had been considered, could be very much lessened by drying the fruit by a high temperature under an enclosure, as against outside sun drying. The matter had been referred to the Advisory Board of Agriculture, and he had been requested to prepare a report. The problem was of great importance, when it was considered that within the next five years the State would be exporting from 75 per cent. to 80 per cent. of the dried fruit pack, instead of about 20 per cent., as at present. If it was desired to secure the oversea market it would be necessary to place the fruit on the market in a better condition than that marketed by our competitors, and if the moth menace could be dealt with effectively the position would be considerably improved. Investigation, he suggested, should be along the following lines:—(1) What kind of insects affected dried fruit; (2) where did infestation take place;

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ALL STATES AND
NEW ZEALAND

(3) methods of eliminating the moth by means of experiments. It has also been suggested that heat would be effective in killing the moth, but Dr. Hargreaves (Director of Chemistry) had ascertained that it was difficult to force heat through a compact mass, such as a packed box of dried fruit. In one test it had taken six hours to raise a heating chamber to a temperature of 155deg. There were several species of moths which not only attacked dried fruit, but lived on all kinds of stored fruit. Preventive methods should be adopted to keep drying grounds and packing sheds clear of fruit debris. The trouble arose principally, however, at the bulk stores in the city or at the port of shipment. The time might come when the A.D.F.A. would have its own bulk stores, and then the problem might be more effectively tackled.

Mr. H. S. Taylor (Renmark) expressed disappointment at the fact that Mr. Quinn and Dr. Hargreaves had not been able to carry them further than they were 12 months ago. The whole future of the industry depended on the solution of the problem. All that Mr. Quinn had told them that morning, they already knew. The cleaning of the sheds had been tried, and it was found to be helpful, although they were disinclined to put much faith in such methods. It was a fixed belief that the greater part of the infestation took place on the drying grounds, and it had been discovered that fruit dried by evaporation was more free of the pest than that which was rack dried. The A.D.F.A. had ordered an evaporator from California, by means of which the evaporating process would be thoroughly tested. He congratulated Mr. Quinn—for whom he had a high regard—on the lucidity with which he stated the position, but it was to be regretted that experiments had not been carried out on a larger scale, and some advancement recorded during the past 18 months.

Mr. W. R. Lewis (Berri) also expressed disappointment at the comparatively negative results of the investigations. Australian fruit could not hold its own in overseas markets even if only a small percentage was affected with the moth.

Mr. Quinn, in reply, said he, too, was disappointed with the position. Unfortunately he had so much to look after that the question probably received but one day's thought out of the 365 in the year. If they wanted an entomologist they had to borrow one, and on occasion important matters were overlooked.

EXPORT OF GRAPES.

Mr. Quinn, in response to a request, dealt with the question of the export of fresh Doradillo grapes. Shipments were first made in 1896, but the results showed that it did not pay to export the fruit. It was not that the grapes would not keep; but it was difficult to get bunches with scattered berries. The Doradillo was a compact grape, and it was difficult to force the granulated cork between the berries, which was necessary when shipping the fruit, and it would not do to thin the bunches out. He did not hold out much hope of profitably shipping Doradillos.

Wednesday Afternoon.

FREE PARLIAMENT.

The closing session of the Congress was devoted to "Free Parliament," when the following resolutions were carried:—

Mr. E. F. Stevens (Mount Barker) moved:—"That from nominations forwarded by the various Bureaux, the Department of Agriculture be requested to compile a list of persons competent to act as judges at shows and to make such list available to the secretaries of agricultural shows." Mr. A. W. Shannon (Keith) seconded.

Mr. L. Maddern (Lone Gum and Monash) moved:—"That this Congress is impressed with the need of steps being taken to combat the moth which attacks dried fruit." The motion was seconded by Mr. H. S. Taylor (Renmark).

At the instance of Mr. J. Ralph (Lone Gum and Monash), seconded by Mr. W. Hargreaves (Port Elliot), it was decided:—"That this Congress recommends the compulsory registration of nurserymen." Mr. H. Wicks (member of the Advisory Board of Agriculture) said the nurserymen's and fruitgrowers' associations were strongly in favor of the registration of nurserymen, but there were many difficulties to overcome. He had been a nurseryman for 40 years—although he was now out of business—and the only way out was by

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the nurserymen's and fruitgrowers' associations working in conjunction with each other. In America nurserymen got their buds—which were taken from good bearing trees and budded into the various stocks in the nurseries—from the fruitgrowers after the trees had been inspected. It would be far better to adopt such a system in this country than to adopt registration.

Mr. H. S. Taylor (Renmark) moved and Mr. W. R. Lewis (Berri) seconded:—"That this Congress again desires to urge the importance of the conservation of the timber resources of the Murray; that the Advisory Board be asked to urge the Government to have a report prepared to show how the future firewood and trellis post requirements of the irrigation settlements are to be met, and that, if necessary, legislation be asked for to enable a proper system of conservation to be carried out on alienated as well as upon Crown lands. Further, this Congress regrets that the proposed inspection by the Forestry sub-committee of the Advisory Board fell through, and trusts that the same will take place as early as possible, and that the inspection will be from the border downwards." He was ashamed to have to move such a motion. Similar motions had been carried at annual Conferences for the past eight years. Shocking and shameful waste of timber was taking place along the Murray.

The remarks of the mover were supported by Messrs. E. J. Moritz (Berri), and T. Burt (Carrow), and Capt. S. A. White (member of the Advisory Board of Agriculture).

Mr. G. Barrett (Shoal Bay) moved and Mr. H. T. Noske (Shoal Bay) seconded:—"That the Government publish official overseas quotations of farmers' produce and requirements in the press." Mr. W. Lang (Virginia) moved and Mr. W. King (Virginia) seconded:—"That this Congress urges on the Government the necessity for introducing legislation to control the sale and distribution of farm and garden seeds." The Virginia delegates also moved and seconded:—"That, in the opinion of this Congress, immediate steps are necessary to cope with the lucerne flea with a view to its extermination."

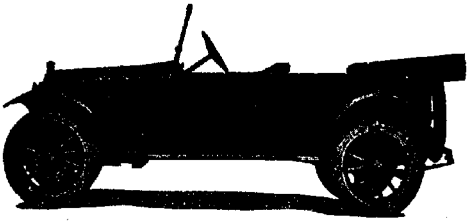
At the instance of Mr. J. Rundle (Yacka), seconded by Mr. H. Toop (Morchard), it was resolved to again approach the Government in connection with delays in the transport of stock on the railways.

Mr. W. E. Hargreaves (Port Elliot) moved:—"That Congress urge the adoption of the practice of selling fat cattle by live weight." The motion was seconded by Mr. W. Haynes (Georgetown).

At the instance of Mr. J. Quick (Yadnarie) it was resolved to recommend:—"That the import duty on sulphur be reduced, and that the Federal Treasurer be commended for promising to reduce the import duty on agricultural articles."

Mr. G. L. Barlow (Smoky Bay) moved:—"That the Government be asked to supply to settlers galvanized iron under similar conditions to those under which it provides fencing material under the provisions of the Fencing Act."

At the instance of a delegate from Pompoota it was resolved:—"That this Congress urge on the Government the necessity for opening up an export market for pigs, and that every encouragement be given the pig industry."



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ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Wednesday, November 8th, there being present Mr. F. Coleman (Acting Chairman), the Director of Agriculture (Professor Arthur J. Perkins), and Messrs. T. H. Williams, H. Wicks, W. G. Auld, L. Cowan, B.Sc. (Agric.), J. W. Sandford, and the Secretary (Mr. H. J. Finnis). Apologies were received from the President (Hon. J. G. Jenkins, Minister of Agriculture), the Deputy Chairman (Mr. W. S. Kelly), and the Vice-Chairman (Capt. S. A. White). Mr. F. Coleman, on behalf of the board, extended a cordial welcome to Messrs. L. Cowan and J. W. Sandford, who had recently been appointed as members of the Board.

Control of Orchard Pests.—The Williamstown Branch drew attention to the fact that there were several badly neglected orchards in their district and asked that the trees should be removed under the compulsory clauses of the Act. The matter was referred to the Horticultural Instructor (Mr. Geo. Quinn), who stated that the neglected orchards had been visited and preliminary steps taken to notify the owners of the requirements of the law. Failure to comply with the notification would result in the Inspectors being instructed to destroy the trees. The Secretary was instructed to advise the Branch accordingly.

Eradication of Lucerne Flea.—The Secretary (Mr. H. J. Finnis) intimated that the Horticultural Instructor (Mr. Geo. Quinn) had reported on the investigations of means of controlling this pest. A trial was made of a mixture made up by Mr. W. Heithersay, and distributed with the aid of a machine constructed by Messrs. Metters, Limited. This trial was made on the property of Mr. H. H. Shillabeer, of Kilkenny, under the observation of an officer of the Horticultural Branch of the Department of Agriculture and the Museum Entomologist. The general result of the application of the mixture was extremely promising. It was quite successful in killing the lucerne flea by poisoning. After treatment, the plots were inspected from time to time over a period of about seven weeks, and no evidence was found of subsequent infestation, although the surrounding growth which was not treated, was badly attacked. It was estimated that an area of about 20 acres of lucerne could be treated in this manner for a cost of about £5. Consequently, the method of treatment was quite an economical one.

Resolutions from 1922 Conference of Eyre Peninsula Branches.—
(1) "That a sheep and wool expert visit the West Coast." The Secre-
to[illegible] (Mr. H. J. Finnis) reported that there was a possibility of an
of th[illegible] being appointed to aid the Wool Instructor of the School of
[illegible], in the event of such an appointment being made, the ser-
At the[illegible] Wool Instructor would be available to visit Branches of
"That th[illegible]ltural Bureau on Eyre Peninsula. (2) "That railway
ing up an[illegible] afforded to enable delegates west of Minnipa to attend the
given the

Conference." The Secretary was instructed to wait on the Railways Commissioner and see if anything could be done to meet the desires of the Branches west of Minnipa. (3) "That the Manager of the Minnipa Experimental Farm be provided with a motor car to enable him to visit Branches and districts in the central areas of Eyre Peninsula as opportunity offers." The Board decided to forward the resolution to the Director of Agriculture requesting a report. (4) "That this Conference urges the appointment of a Government Veterinary Surgeon for Eyre Peninsula." On the motion of Mr. J. W. Sandford, seconded by Mr. H. Wicks, it was decided to forward the resolution to the Minister. (5) "That the Veterinary Branch be asked to investigate further the cause of mortality among sheep generally attributed to stinkwort." It was decided to transmit the resolution to the Minister with a request that field investigations should be carried out when the stinkwort was flowering during next autumn. (6) "Owing to the urgent need for water this Conference urges that a pumping station be placed at Polda, and water pumped from there to the railway line." The Board decided to forward the resolution to the Minister with a request that the matter should be brought under the notice of the Minister for Public Works.

Annual Congress Resolutions.—The following resolutions were carried at Congress:—(1) "That from nominations forwarded by the various Branches of the Agricultural Bureau, the Department of Agriculture be requested to compile a list of persons competent to act as judges at shows, and to make such lists available to the secretaries of agricultural shows." The Secretary was instructed to confer with the Secretary of the Royal Agricultural and Horticultural Society and submit suggestions to the next meeting of the Board. (2) "That the Government be asked to supply to settlers galvanized iron under similar conditions to those which it provides fencing material under the provisions of the Fencing Act." It was decided that the Instructor for Mallee Lands should visit the district and investigate the proposal on the spot.

Concrete Trellis Posts.—A communication was received from the Barmera Branch asking the Board to bring under the notice of the Minister the fact that concrete trellis posts were being manufactured in Barmera. The Branch requested that the matter should be investigated with a view to the adoption of the concrete posts in the Murray districts. It was decided to forward the resolution to the Minister, with a request that it should be brought under the notice of the Irrigation Department.

Crop and Fallow Competitions.—Mr. F. Coleman, on behalf of Mr. W. S. Kelly, moved and the Director of Agriculture (Professor Arthur J. Perkins) seconded "That, in view of the importance and prospective value of crop and fallow competitions in this State, it is desirable that a committee consisting of Professor Arthur J. Perkins, Messrs. F. Coleman, W. J. Colebatch, J. W. Sandford, the Secretary (H. J. Finnis), and the mover (Mr. W. S. Kelly) should be appointed to inquire into and report thereon." The resolution was carried.

New Branch.—Approval was given for the formation of a Branch of the Agricultural Bureau at Farrell's Flat, with the following gentlemen as foundation members:—A. E. Thompson, E. B. I'Anson, E. Pratt, R. W. I'Anson, W. Short, A. Short, H. Cope, R. Nicholls, A. Atkins, H. Atkins, W. Bucley, S. Garrett, T. Angas, M. Ruby, F. Kirk, F. Bexterson, T. Dunn, and H. D. Thompson.

Branch to be Closed.—It was decided to close the Dawson Branch.

New Members.—The following names were added to the rolls of existing Branches:—Millicent—Wm. Barron, R. G. Beverley; Pinnaroo—F. Hunt, C. Lloyd; Lake Wangary—G. Puckridge; Goode—P. Linke; Strathalbyn—K. Tucker, C. Shackleton, L. Springbett, J. L. Atkinson, Sir J. L. Stirling, F. G. Abbott, G. Semple; Gladstone—H. T. Hearslett, T. C. Curtis; Hartley—A. Barrett, H. Davis, A. Sey; Georgetown—J. Fogarty, jun., F. Page, J. Page, R. W. Peters, R. Treasure, R. Trebilcock, — Rees, R. Dowsing, C. Humphris, W. Clark, R. Clark, R. King, M. King, C. King, J. Hill, G. Hill, T. Hill, L. McAuley; Kilkerran—A. James, F. J. King; Barmera—M. Pike, H. T. Gande, D. L. Fry, A. C. Warsop, G. M. Buchanan, R. G. Berry, W. Dunstan, G. Jones, T. A. Cain, C. E. Gyllensten, J. J. Elliott, T. P. Jenkins; Redhill—S. A. Bates, Saddleworth (ladies)—Mrs. H. Flamank, Mrs. Stan. Klem; Elbow Hill—A. R. Pearce, H. J. Wheeler; Taplan—H. R. Turner, J. S. Andison; Arthurton—M. T Hines; Williamstown—A Moore; Rockwood—L. Neighbour; Warcowie—J. Ryan, R. Jarvis; Renmark—A. R. Loffler; Roberts and Verran—C. Simmons; Parilla—G. Allen; Rapid Bay—H. West, G. Jones, J. Ryan; Nelshaby—T. Davies; Petina—G. T. Stone, B. P. Thorpe; Lameroo—N. A. Taylor; Waikerie—T. Thompson; Yardnarie—R. Forbes, L. Acken; Longwood—W. Penny; Yacka—C. Mullins, T. J. Harvey, J. Coad; Block E.—J. Pethick, P. R. Bellew, C. Bowen, K. Harrison, J. Ritchie; Balhannah—W. Smith, G. F. Lauterbach; Millicent—H. S. Watts; Salisbury—H. Keckebusch, J. Bubner.

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TEMPORARY PREMISES—

11, GRESHAM STREET - - ADELAIDE.

IMPORTS AND EXPORTS OF FRUITS, PLANTS, ETC., OCTOBER, 1922.

IMPORTS.

Interstate.

Apples (bushels)	19
Bananas (bushels)	11,636
Oranges (bushels)	3
Passion fruit (bushels)	111
Pineapples (bushels)	947
Tomatoes (bushels)	11
Carrots (packages)	47
Cucumbers (bushels)	62
Onions (bags)	673
Potatoes (bags)	18,320
Nuts (packages)	2
Bulbs (packages)	12
Plants (packages)	25
Seeds (packages)	40
Trees (packages)	1
Wine casks, empty (number)	3,177

Fumigated—37 empty wine casks.

Rejected—11 bushels of bananas and 10 bushels of tomatoes.

Overseas.

Federal Quarantine Act.

Seeds, &c. (packages)	3,698

EXPORTS.

Federal Commerce Act.

Two thousand four hundred and ninety-five packages of citrus fruit, 3,920 packages of dried fruit, 3 packages of fresh fruit, 6 packages f preserved fruit, 2 packages of honey, and 4 packages of jam were xported to oversea markets. These were consigned as follows:—

London.

Dried fruit (packages)	8,793
Jam (packages)	4
Preserved fruit (packages)	4

New Zealand.

Preserved fruit (packages)	2
Dried fruit (packages)	2,778
Citrus fruit	2,493

India and East.

Citrus fruit (packages)	2
Apples (packages)	3
Dried fruit (packages)	244
Honey (packages)	2

South Africa.

Dried fruit (packages)	1,605

United States of America.

Dried fruit (packages)	500

THE AGRICULTURAL OUTLOOK.

REPORTS FOR THE MONTH OF NOVEMBER.

The following reports on the Agricultural condition and outlook of the areas represented by the Government Experimental Farms mentioned below have been prepared by the respective Managers:—

Booborowie.—Weather—The weather on the whole has been cool, with an occasional short spell of unpleasantly hot weather. The rainfall has been practically nil, only 6 points having been registered up to the 28th inst. Crops—The crops are not good for this particular locality, and at present it is difficult to say what the yield will be; but one very noticeable feature is the early sown crops are much better than late ones, and this has been the case for the last two seasons. Natural feed is abundant, though dry. The lucerne fields are looking well at present, and are very pleasant to look at during the summer months, when everything else is dry. Stock—All the livestock are in excellent condition, which is only natural at this time of the year. Pests—Numerous thistles are now making vigorous growth, and rabbits are plentiful in isolated places, but, generally speaking, they are not present in such large numbers as has been the case during the last four years. Miscellaneous—Haycutting is completed, and the stripping of oats and barley is being proceeded with as rapidly as possible.

Eyre Peninsula.—Weather—Very dry and strong winds. Only eight points of rain for the month. Crops—Harvesting in full swing. Early Gluyas has averaged 18bush. 39lbs. per acre on 8in. of rain on new land, and cut approximately 2 tons hay per acre. All grain is of good sample considering the year. Natural feed is scarce. Stock—All in good condition and free from disease. Pests—Cut worms have put in an appearance and are hindering growing vegetables. Miscellaneous—Water carting is general, and without rains very shortly there will be a dangerous scarcity in most districts.

Kybybolite.—Weather has been dry, with several rather warm spells. Only 30 points rain have been registered for the month, which is considerably below the average. No damaging winds were noted, and little or no muggy conditions. Crops have ripened off quickly, necessitating a rush at haymaking, but most of the hay has now been cut. Ensilage, too, could scarcely be cut and carted quickly enough. Grain crops are filling well, and those on limed areas promise to yield high averages. Summer crops germinated well, but need a good rain shortly to carry them along. Peas and barley for grain promise to be above the average. Natural feed is very plentiful, although drying off rather quickly. Pests—"Takeall" disease is more in evidence than usual in some crops, but rust is not very plentiful except in odd plots.

Veitch.—Weather—Have had a dry month—9 points up to date. Veitch average for same month, 100 points. Also had very heavy winds. Crops are yielding well considering the year's rainfall (926 points); 15bush. to the acre are being taken off many fields in the district. Natural Feed—Enough available to keep stock going. Stock—All in healthy condition. Pests—Nothing troublesome. Miscellaneous—A few loads of the new season's wheat have been carted into Veitch siding, and is a fair sample. Roads are being considerably improved in the district.

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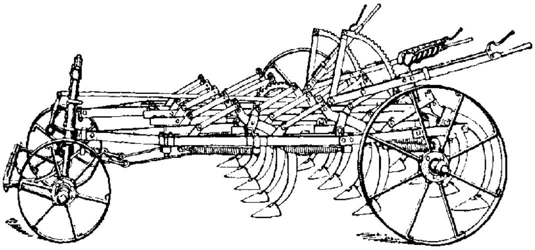
Ploughs, 4 to 10 Furrows. Cultivators, 13 to 21 Tynes.



The illustration shows our 17-TYNE IDEAL LOCK SPRING CULTIVATOR. This implement has proved itself invaluable in hilly and stony land; it is easily adjustable, and will stand up to the roughest work. We also supply bridle draught cultivators, if required, and can deliver from stock. We also manufacture

PLOUGHS,

HARROWS,

HAY TROLLIES.

Our hay trollies are well known and require very little comment on our part, but we would like to stress the following points:—

Soundness of Construction and Seasoned Timber, Correct Setting of Axles and Alignment, ensuring the Lightest Possible Draught.

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DAIRY AND FARM PRODUCE MARKETS

A. W. Sandford & Co., Limited, reported on December 1st, 1922:—

BUTTER.—Weather conditions generally have been favorable for making and marketing butter. Supplies have shown a seasonable shrinkage, and heavy quantities have been shipped to Great Britain. London reports an easing market, which has had the effect of reducing prices somewhat here. Private separators and dairies have been in good request, and anything approaching quality and condition fetched satisfactory prices. At the close of the month first grade factory and creamery fresh butter in bulk sold at 1s. 4½d.; second grade factory and creamery, 1s. 2d. to 1s. 2½d.; best separators and dairies, 1s. 3d. to 1s. 4d.; fair quality, 13½d. to 14½d.; well-conditioned store and collectors, 11½d. to 12½d.; weather affected lots down to 11d.

EGGS.—Slight fluctuations have occurred in the market; pulp manufacturers and picklers have been busy in their operations, and good clearances have been effected, values being 1s. for fresh hen and 1s. 1d. per dozen for duck.

CHEESE.—Considerable quantities have come forward from the South-East. Demand both for export and local trade has been exceptionally heavy, and owing to the London market advancing, prices have firmed up here in sympathy. Rates at the end of the month were 8¾d. to 9¼d. for large to loaf.

HONEY.—The new season's is coming forward freely, and where quality is right good business is being experienced, prime clear extracted selling at 3½d. to 4d.; second grades, 2d. to 2½d.; beeswax, 1s. 7d. to 1s. 8d. for clear samples.

ALMONDS.—This line is scarce, last season's crop being practically cleared. Only odd lots are coming forward, which are finding ready buyers. Brandis, 13d.; mixed softshells, 1s.; hardshells, 6d.; kernels, 1s. 8d. to 1s. 9d.

BACON.—The warmer weather is causing a much better demand. Sides and middles are selling freely, and hams are finding the usual Christmas inquiry. Best factory cured sides are selling at 12½d. to 13d.; middles, 1s. 2d.; hams, 1s. 5d. to 1s. 6d.; lard in packets, 8d.; in bulk, 7d. to 7½d.

LIVE POULTRY.—Supplies coming forward have been exceptionally heavy, but the pleasing feature is the active demand that has ruled throughout the month. Buyers have been busy in their operations, and secured and put away for Christmas trade. Our three weekly auctions, Tuesday, Thursday, and Friday, have been well attended, and good clearances have been effected at very satisfactory prices to consignors. During December we are holding daily sales to facilitate delivery. Crates obtainable on application. Rates ruling at to-day's auction were as follows:—Prime roosters, 5s. 6d. to 7s.; nice conditioned cockerels, 4s. to 5s. 3d.; plump hens, 3s. 3d. to 4s. 9d.; medium hens, 2s. to 3s.; couple of pens lower; ducks, good condition 5s. to 7s. 10d., fair condition 3s. to 4s. 9d.; geese, 6s. 8d. to 8s. each; turkeys, prime condition, 1s. 2d. to 1s. 6d. per lb. live weight; fair condition, 11d. to 1s. 1d.; fattening sorts lower; pigeons, 9d. each.

POTATOES.—The sale for old potatoes has now practically ceased, customers' requirements being supplied with the new potatoes. Fairly heavy importations have been made of Western Australian, which have turned out very well. Meanwhile locals are increasing each week. Quotations at the close of the month were:—Victorian old, 12s. to 13s. per cwt.; new, from 14s. to 16s. per cwt. on trucks Mile End.

ONIONS.—Values for this line have eased somewhat during the month, the market being from 14s. to 16s. per cwt. on trucks Mile End.

RAINFALL TABLE.

The following figures, from data supplied by the Commonwealth Meteorological Department, show the infall at the subjoined stations for the month of and to the end of November, 1922, also the average ecipitation to the end of November. and the average annual rainfall.

Station.	For Nov., 1922.	To end Nov., 1922.	Av'ge to end Nov, 1922.	Av'ge. Annual Rainfall
FAR NORTH AND UPPER NORTH.				
odnadatta	—	4·25	4·42	4·83
arree	—	2·37	5·47	6·10
arina	—	3·41	6·23	6·73
opley	—	3·19	7·69	8·45
eltana	—	4·59	8·14	9·01
linman	—	6·41	11·70	12·62
arcoola	—	2·63	6·46	7·59
ookina	—	10·10	12·26	13·30
awker	—	11·12	11·40	12·72
ilson	—	10·45	11·05	12·33
ordon	—	8·23	10·56	11·05
uorn	—	9·12	12·92	14·00
ort Augusta	0·02	8·32	9·06	9·54
ort Augusta West	—	7·48	8·96	9·53
ruce	—	7·65	9·90	10·40
ammond	0·06	9·56	10·99	11·61
ilmington	0·08	15·29	17·39	18·17
illowie	0·03	12·74	11·50	12·16
elrose	0·15	22·59	22·31	23·21
Booleroo Centre	0·04	13·41	14·52	15·53
Port Germein	0·07	11·02	11·97	12·79
Wirrabara	—	14·17	18·85	19·62
Appila	0·06	12·15	14·96	14·98
Cradock	—	9·75	10·58	11·18
Carrieton	—	10·10	11·84	12·63
Johnburg	—	10·52	10·92	10·50
Eurelia	—	10·12	12·42	13·36
Orroroo	—	10·74	12·22	13·57
Nackara	—	11·52	11·09	11·33
Black Rock	—	10·67	11·81	12·51
Ucolta	—	—	11·30	11·90
Peterborough	0·01	10·73	13·85	13·43
Yongala	0·01	12·73	13·51	14·41
LOWER NORTH-EAST.				
Yunta	—	5·33	8·21	8·75
Waukaringa	—	4·06	9·09	8·41
Mannahill	—	2·89	7·91	8·54
Cockburn	—	4·30	9·19	8·22
Broken Hill, N.S.W.	0·01	5·77	—	9·91
LOWER NORTH.				
Port Pirie	0·05	12·59	12·67	13·36
Port Broughton	0·04	13·20	13·52	14·18
Bute	0·04	12·37	15·32	15·65
Laura	0·10	17·14	17·29	18·16
Caltowie	0·05	16·71	16·15	17·07
Jamestown	0·12	17·47	16·74	17·74
Bundaleer W.Wks.	0·10	16·71	16·88	17·89
Gladstone	0·05	17·13	15·28	16·13
Crystal Brook	0·05	14·14	14·98	15·74
Georgetown	0·10	19·12	18·49	18·44
Narridy	0·07	12·17	15·48	16·41
Redhill	0·09	15·31	16·04	16·75
LOWER NORTH—*continued.*				
Spalding	0·08	15·07	19·10	20·33
Gulnare	0·08	17·09	18·17	19·23
Yacka	0·07	14·10	14·55	15·34
Koolunga	0·08	13·45	13·76	15·79
Snowtown	0·10	14·15	15·40	15·95
Brinkworth	0·10	13·95	16·25	16·16
Blyth	0·08	16·97	16·08	16·75
Clare	0·27	25·83	23·50	24·51
Mintaro	0·20	25·88	27·20	23·26
Watervale	0·15	27·73	24·15	27·41
Auburn	0·15	23·80	23·29	24·25
Hoyleton	—	17·66	16·92	17·79
Balaklava	0·04	15·22	15·06	15·87
Port Wakefield	—	11·14	12·64	13·19
Terowie	—	11·89	12·69	13·67
Yarcowie	—	13·85	13·28	14·06
Hallett	—	13·31	15·42	16·37
Mount Bryan	—	14·11	15·52	16·54
Kooringa	0·05	18·03	17·10	17·96
Farrell's Flat	0·11	17·45	18·00	18·90
WEST OF MURRAY RANGE.				
Manoora	0·12	20·48	20·24	18·63
Saddleworth	0·11	18·99	18·73	19·70
Marrabel	0·08	21·57	18·48	19·55
Riverton	0·16	21·91	19·77	20·66
Tarlee	—	20·34	16·91	17·75
Stockport	0·08	18·19	15·52	16·34
Hamley Bridge	0·13	16·42	15·53	16·45
Kapunda	0·08	19·62	18·86	19·80
Freeling	0·06	18·59	16·94	17·82
Greenock	—	21·51	19·48	21·56
Truro	0·08	18·83	19·21	20·07
Stockwell	0·04	18·76	18·26	20·24
Nuriootpa	0·02	19·00	19·86	20·94
Angaston	0·02	21·46	21·34	22·44
Tanunda	0·02	20·62	21·20	22·17
Lyndoch	0·07	20·84	21·89	22·81
Williamstown	—	23·42	26·39	27·52
ADELAIDE PLAINS.				
Mallala	0·16	16·14	15·84	16·58
Roseworthy	—	16·00	16·42	17·27
Gawler	—	15·85	18·81	19·08
Two Wells	—	13·34	15·07	15·85
Virginia	—	13·59	16·45	17·32
Smithfield	—	12·93	16·32	17·15
Salisbury	—	17·73	17·64	18·49
North Adelaide	0·08	23·92	21·12	22·09
Adelaide	0·08	20·22	20·07	21·03
Glenelg	—	18·43	17·53	18·37
Brighton	0·12	18·87	19·71	21·24
Mitcham	0·16	28·81	23·02	23·92
Glen Osmond	0·18	28·27	24·67	25·74
Magill	0·14	25·06	24·05	25·27

RAINFALL—*continued.*

Station.	For Nov., 1922.	To end Nov., 1922.	Av'ge. to end Nov., 1922.	Av'ge. Annual Rainfall
MOUNT LOFTY RANGES.				
Teatree Gully	0·23	24·04	27·32	27·77
Stirling West	0·62	50·99	43·68	46·62
Uraidla	0 60	48·57	42·19	44·06
Clarendon	0·21	34·98	31·62	32·98
Morphett Vale	0·10	24·36	21·82	22·76
Noarlunga	0·08	20·68	19·53	20·27
Willunga	—	28·59	22·98	25·87
Aldinga	—	20·70	18·53	20·24
Myponga	0·16	31·92	28·20	28·44
Normanville	0·11	24·19	17·97	20·51
Yankalilla	0·06	27·42	21·23	22·99
Mount Pleasant	0·06	28·01	26·16	27·04
Birdwood	0·04	25·92	28·24	29·26
Gumeracha	0·16	30·97	31·96	33·25
Millbrook Reservoir	0·18	39·51	—	—
Tweedvale	0·32	31·43	34·16	35·54
Woodside	0·23	31·15	30·92	32·08
Ambleside	0·31	34·60	33·36	34·62
Nairne	0·19	26·42	27·32	28·43
Mount Barker	0·32	32·94	29·99	31·13
Echunga	0·23	33·20	31·76	32·91
Macclesfield	0·15	30·20	29·44	30·53
Meadows	0·24	36·54	34·75	36·04
Strathalbyn	0·08	18·78	18·52	19·26
MURRAY FLATS AND VALLEY.				
Meningie	0·19	14·94	18·84	18·66
Milang	0·07	15·26	14·73	15·42
Langhorne's Creek	0·08	11·32	13·88	14·55
Wellington	0·17	14·12	13·85	14·68
Tailem Bend	0·09	14·28	13·64	14·11
Murray Bridge	0·06	12·91	13·12	13·83
Callington	0·08	15·51	14·78	15·37
Mannum	—	10·79	11·04	11·52
Palmer	—	12·39	14·62	15·24
Sedan	—	10·17	11·63	12·13
Swan Reach	—	8·76	10·21	10·82
Blanchetown	—	5·21	11·50	10·16
Eudunda	0·08	14·59	15·99	17·50
Sutherlands	0·13	10·08	10·42	10·92
Morgan	—	8·03	8·54	9·18
Waikerie	—	7·50	8·88	9·68
Overland Corner	—	7·22	10·26	11·08
Loxton	0·04	11·05	11·53	12·58
Renmark	—	9·59	10·15	11·02
WEST OF SPENCER'S GULF.				
Eucla	0·40	8·45	9·60	10·02
White Well	0·09	10·07	8·58	9·10
Fowler's Bay	0·22	9·88	11·86	12·19
Penong	0·05	10·73	12·07	12·25
Ceduna	—	6·54	9·80	10·32
Smoky Bay	—	9·35	10·87	10·92
Petina	—	—	12·49	13·05
Streaky Bay	0·02	11·58	14·44	15·11
Talia	—	10·60	14·77	15·38
Port Elliston	0·10	15·28	16·07	16·53
Cummins	0·24	13·08	—	18·87

Station.	For Nov., 1922.	To end Nov., 1922.	Av'ge. to end Nov., 1922.	[illegible]
WEST OF SPENCER'S GULF—*continued.*				
Port Lincoln	0·06	14·65	19·05	[illegible]
Tumby	0·02	9·91	13·89	[illegible]
Carrow	—	8·29	14·00	[illegible]
Arno Bay	—	6·57	12·65	[illegible]
Cowell	—	6·21	10·09	[illegible]
Point Lowly	—	9·22	—	—
YORKE PENINSULA.				
Wallaroo	0·03	10·09	13·56	[illegible]
Kadina	0·75	12·55	15·47	[illegible]
Moonta	0·70	11·70	15·70	[illegible]
Green's Plains	0·13	12·43	15·21	[illegible]
Maitland	0·13	15·74	19·39	[illegible]
Ardrossan	0·16	14·22	13·55	[illegible]
Port Victoria	0·10	14·13	14·84	[illegible]
Curramulka	0·05	14·64	17·60	[illegible]
Minlaton	0·18	15·24	17·82	[illegible]
Brentwood	0·02	13·70	15·19	[illegible]
Stansbury	—	13·80	16·47	[illegible]
Warooka	0·04	17·07	17·25	[illegible]
Yorketown	0·03	14·75	19·70	[illegible]
Edithburgh	—	14·24	15·88	[illegible]
SOUTH AND SOUTH-EAST.				
Cape Borda	0·11	23·17	24·43	[illegible]
Kingscote	0·07	15·09	18·57	[illegible]
Penneshaw	0·06	17·82	19·55	[illegible]
Victor Harbor	0·14	21·22	20·61	[illegible]
Port Elliot	0·06	21·64	18·23	[illegible]
Goolwa	0·07	15·84	17·08	[illegible]
Meribah	0·05	10·72	—	—
Mindarie	0·11	8·50	—	—
Karoonda	0·14	15·07	—	—
Pinnaroo	0·12	11·68	16·81	[illegible]
Parilla	0·10	12·46	13·81	[illegible]
Lameroo	0·07	13·23	14·28	[illegible]
Parrakie	0·06	12·71	13·62	[illegible]
Geranium	0·11	19·26	15·30	[illegible]
Peake	0·09	16·41	14·40	[illegible]
Cooke's Plains	0·12	16·43	14·23	[illegible]
Coomandook	0·11	15·98	16·54	[illegible]
Coonalpyn	0·15	15·14	16·50	[illegible]
Tintinara	0·20	19·18	17·47	[illegible]
Keith	0·23	18·35	18·13	[illegible]
Bordertown	0·17	15·08	18·37	[illegible]
Wolseley	0·23	15·75	17·18	[illegible]
Frances	0·14	16·09	—	[illegible]
Naracoorte	0·21	22·43	21·38	[illegible]
Penola	0·72	22·00	24·95	[illegible]
Lucindale	0·37	21·85	21·80	[illegible]
Kingston	0·33	25·36	23·32	[illegible]
Robe	0·37	28·53	23·61	[illegible]
Beachport	0·29	24·52	26·15	[illegible]
Millicent	0·40	28·64	28·23	[illegible]
Kalangadoo	0·85	28·59	—	[illegible]
Mount Gambier	0·79	25·06	29·59	[illegible]

AGRICULTURAL BUREAU REPORTS.

INDEX TO CURRENT ISSUE AND DATES OF MEETINGS.

Branch.	Report on Page	Dates of Meetings	
		Dec.	Jan.
Alawoona	*	—	—
Aldinga	486	—	—
Amyton	*	4	—
Angaston	*	—	—
Appila-Yarrowie	*	—	—
Arthurton	476	—	—
Ashbourne	*	—	—
Balaklava	*	9	13
Balhannah	C		
	487, 494	1	—
Barmera	486	6	30
Beetaloo Valley	*	—	—
Belalie North	*	2	—
Berri	‡	—	31
Big Swamp	*	—	—
Blackheath	‡	2	—
Black Springs	466	5	—
Blackwood	*	18	15
Block E	466	—	—
Blyth	459	2	6
Booleroo Centre	C	1	R
Borrika	*	—	—
Bowhill	*	—	—
Brentwood	*	—	—
Brinkley	*	2	—
Bundaleer Springs	*	—	—
Burra	*	—	—
Bute	*	—	30
Butler	476	—	—
Cadell	*	—	—
Canowie Belt	*	—	—
Carrow	C	—	—
Cherry Gardens	490	—	30
Clanfield	*	—	—
Clare	C 468	—	—
Clarendon	‡	4	29
Claypan Bore	481	6	3
Cleve	480	—	31
Collie	‡	R	R
Colton	*	—	26
Coomandook	*	—	31
Coonalpyn	*	1	6
Coorabie	*	2	—
Cradock	‡	—	—
Crystal Brook	462	—	—
Currency Creek	‡	—	—
Cygnet River	494	—	—
Dawson	*	—	—
Denial Bay	*	—	—
Edillilie	*	R	—
Elbow Hill	C	—	—
Eurelia	*	—	27
Frances	*	—	—
Gawler River	*	5	30
Georgetown	C	2	—
Geranium	486	—	27
Gladstone	C	1	—
Glencoe	‡	—	—
Glossop	‡	—	31
Goode	*	6	31
Green Patch	‡	4	29
Gumeracha	*	4	—
Halidon	*	—	—
Hartley	*	6	—
Hawker	*	—	—
Hilltown	*	—	—
Hookina	‡	4	—
Inman Valley	*	—	—
Ironbank	494	2	27
Kadina	*	—	—
Kalangadoo	‡	9	13
Kangarilla	491	—	—
Kanmantoo	*	2	—
Keith	*	—	—
Ki Ki	F	—	—
Kilkerran	*	—	R
Kimba	*	—	—
Kingscote	*	—	—
Kingston-on-Murray.	*	—	—
Kongorong	F	7	—
Koonibba	476	1	—
Koppio	478	4	29
Kybybolite	494	R	R
Lake Wangary	‡	2	—
Lameroo	486	1	5
Laura	466	2	6
Leighton	*	—	—
Lenswood and Forest Range	*	—	—
Lipson	480	—	—
Lone Gum and Monash	486	6	3
Lone Pine	‡	—	—
Longwood	492	9	—
Loxton	481	—	—
Lucindale	‡	—	—
Lyndoch	‡	—	—
McLachlan	C	—	—
Maitland	‡	R	R
Mallala	C	C 4	15
Maltee	‡	1	—
Mangalo	*	—	—
Marama	‡	R	R
Meadows	492, 494	6	3, 31
Meningie	*	—	—
Milang	494	9	13
Millicent	*	2	6
Miltalie	C 478	2	—
Mindarie	*	4	—

INDEX TO AGRICULTURAL BUREAU REPORTS—*continued.*

Branch.	Report on Page	Dates of Meetings.	
		Dec.	Jan.
Minlaton	*	1	—
Minnipa	*	—	31
Monarto South	‡	—	—
Moonta	C	R	R
Moorak	‡	—	—
Moorlands	*	—	—
Moorook	*	—	—
Morchard	‡	R	R
Morgan	*	—	—
Morphett Vale	*	7	4
Mount Barker	*	—	31
Mount Bryan	*	—	—
Mount Byran East	*	—	—
Mount Compass	*	—	—
Mount Gambier	*	9	13
Mount Hope	479	2	27
Mount Pleasant	‡	—	—
Mount Remarkable	459	—	—
Mundalla	*	—	31
Murray Bridge	*	—	—
Mypolonga	*	—	31
Myponga	*	—	—
Nantawarra	*	—	—
Naracoorte	496	4	13
Narridy	*	2	6
Narrung	*	2	6
Neeta	*	—	—
Nelshaby	465	2	—
Netherton	*	—	—
North Booborowie	465	—	R
North Bundaleer	*	—	—
Northfield	*	13	—
Nunkeri and Yurgo	*	3	—
O'Loughlin	480	—	31
Orroroo	*	—	—
Owen	470	1	—
Parilla	*	—	—
Parilla Well	*	4	—
Parrakie	*	—	—
Paruna	482	—	—
Paskeville	476	R	—
Pata	486	—	—
Penola	C 496	2	—
Petina	C 480	R	R
Pinnaroo	C	1	5
Pompoota	*	13	10
Port Broughton	*	1	—
Port Elliot	C	R	R
Port Germein	*	—	—
Pygery	C	—	—
Ramco	484	4	29
Rapid Bay	‡	2	6
Redhill	C	—	—
Rendelsham	‡	—	31
Renmark	*	—	—
Riverton	*	—	—
Riverton (Women's)	*	—	—
Roberts and Verran	C	R	R
Rockwood	492	4	—
Rosedale	C	R	R
Rosy Pine	*	—	—
Saddleworth	*	—	—
Saddleworth (Women's)	476	—	—
Salisbury	C	5	—
Salt Creek	‡	R	R
Sandalwood	*	—	—
Shoal Bay	C	—	—
Smoky Bay	‡	2	27
Spalding	*	—	—
Stockport	C 476	—	—
Streaky Bay	*	—	—
Strathalbyn	494	—	30
Talia	‡	R	R
Tantanoola	*	2	—
Taplan	*	9	6
Tarcowie	‡	—	30
Tarlee	470	—	—
Tatiara	C	16	20
Two Wells	472	—	—
Uraidla & Summertown	*	4	—
Veitch	*	—	—
Virginia	*	—	—
Waikerie	486	—	—
Wall	*	—	—
Wanbi	*	—	—
Warcowie	459	—	—
Watervale	476	—	—
Weavers	‡	4	29
Whyte-Yarcowie	C 466	—	—
Wilkawatt	*	R	R
Williamstown (Women's)	473	6	—
Williamstown	C 474	1	—
Willowie	C	—	31
Wilmington	‡	R	R
Windsor	*	R	R
Winkie	‡	—	—
Wirrabara	466	2	—
Wirrega	‡	—	—
Wirrilla	479, 481	2	27
Wolowa	*	—	—
Wudinna	C	—	—
Wynarka	F	—	—
Yabmana	*	—	—
Yacka	465	—	30
Yadnarie	480	—	30
Yallunda	*	—	—
Yaninee	*	—	—
Yeelanna	480-1	—	27
Yongala Vale	*	—	—
Yorketown	*	7	—
Younghusband	486	—	4

* No report received during the month of November.
‡ Held over until next month.
R In recess.
F Formal.
C Congress report.

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

Every producer should be a member of the Agricultural Bureau. A postcard to the Department of Agriculture will bring information as to the name and address of the secretary of the nearest Branch.

If the nearest Branch is too far from the reader's home, the opportunity occurs to form a new one. Write to the department for fuller particulars concerning the work of this institution.

REPORTS OF BUREAU MEETINGS.

UPPER-NORTH DISTRICT.

(PETERBOROUGH AND NORTHWARD.)

MOUNT REMARKABLE, October 16th.—The Assistant Dairy Expert (Mr. H. J. Apps) attended the meeting and delivered an address, in which he dealt with the formation and advantages to be obtained from a herd-testing society. It was decided that the Branch should go into recess until after harvest.

WARCOWIE, September 6th.—Mr. A. Crossman read a paper, "Care of Farm Stock," and a good discussion ensued.

The annual meeting of the Branch was held on August 2nd, when the report of the work performed by the Branch during the past year was presented by the Hon. Secretary (Mr. A. G. Telfer), and the officers were elected for the forthcoming year.

MIDDLE-NORTH DISTRICT.

(PETERBOROUGH TO FARRELL'S FLAT.)

BLYTH (Average annual rainfall, 16.46in.).
September 2nd.—Present: 11 members.

THE MANAGEMENT OF THE COW AND HER CALF.—Mr. C. E. Hutton read the following paper:—"The heifers of the larger breeds of cattle, such as the Holstein and Shorthorn, should not, as a rule, calve before they are 2½ years old, whilst the quicker maturing Jersey can calve at 2 years. The other breeds come between these two extremes. The cow takes 283 days, or about nine and a half months to produce a calf, therefore heifers should have access to the bull between 15 and 21 months. No hard and fast rule can be laid down regarding this matter, a farmer must use his own discretion; a heifer that is backward should be given a little longer, whilst a forward heifer, or one that shows an inclination to lay on fat, may be given access to the bull a little earlier. Allowing a heifer to calve too early has the effect of producing a small cow of fine bone, and if by accident a heifer comes in early, she should be given a good rest, to give her time to build up before she is again put to the bull. The matured cow should be taken in hand some time before calving, and should be gradually dried off with six to eight weeks between drying off and calving. As calving approaches, the heifer or cow should be brought into a paddock near the farm, where she can be watched. If a cow is unable to calve, owing to unnatural presentation, the experienced farmer or a veterinary surgeon should be called in to render assistance. The operator's hands and all instruments must be perfectly clean. The heifer should be milked as long as possible, even if she only gives a small quantity of milk, as this will help to develop her milking characteristics, and when she again comes into milk her period of lactation will be considerably lengthened and she will be more capable of producing milk. It is little use a farmer keeping a good bull if he does not intend to rear the majority of the heifer calves. A farmer should pay special attention to the rearing of the calves if he intends to improve the herd. The more highly bred an animal is, the more susceptible it is to disease, and, therefore, if proper care is not taken the farmer will lose the best of his calves. It is generally accepted that the sooner a calf is taken from its mother the better, because the calf will be easier to teach to drink from a bucket. It also insures the cow being properly milked, which is most important, especially with cows that give large quantities of milk, or cows with large teats or quarters that are hard to milk. When a cow comes in the first milk, or colostrum, contains a high percentage of protein matter—casein and albumen. This milk is necessary to build up the young calf, and acts not only as a food, but as a medicine, having the power of stimulating the digestive organs of the calf. Therefore, the calf should receive its mother's milk and no other for the first week. For at least the following fortnight it should receive fresh milk from the whole of the herd. After this the calf's food can be gradually changed. The method of rearing calves can be divided into three—(1) Rearing the calf by letting it run with its mother. This is not often done, but sometimes with a poor milker it is more economical to do this than to bring in the cow and hand milk her. (2) Rearing calves where whole milk is sold for domestic use, the manufacture of cheese, or condensed milk. In this case the difficulty is to know how to feed calves without the feed costing more than the calves are worth. The calf's feed should, after the first three weeks, be gradually changed to a grain ration. The most common substitutes used with more or less success consists largely of oil meal and wheaten flour. The calves should also receive as much cereal hay as they will eat. (3) Rearing calves where skim milk is available. If the necessary precautions are taken a skim-milk calf should prove equally as good in size, thrift, and value as one nursed by its mother. One often sees unhealthy small calves, the cause being put down to the feeding of skim milk, but such is not the case. Generally it is the result of carelessness on the part of the owner, and not that the cream has been removed from the milk. The casein and albumen are the portions that furnish the growth-making material; the cream is not absolutely necessary to the normal development and growth of the calf, it supplies body heat and fat for body tissue. A calf fed on skim milk is not generally so fat during the first six months as one nursed by the cow, but often shows a rather better development of bone and muscle, and a few weeks after weaning the difference between the two cannot be noticed. At the end of three weeks the calf's food should be gradually changed to skim milk, by cutting down the whole milk and making up the quantity with skim milk. The calves should receive as much cereal hay as they will eat, and also have the run of some pasture, as the young stock will get the required amount of fat from this. A good plan for a farmer who has only a few calves is to let them run in the hay yard. Whether feeding calves with milk or substitute, they should, if possible, be fed out of a bucket, because if calves are fed out of a common trough, some drink faster than others, while the slower drinkers do not get a fair share. There are several calf feeders on the market, and they are generally made on the principle of a rubber nipple for the calf to suck and connected with a bucket by a tube. These feeders are difficult to keep clean and in good order. Cracks in the rubber are very good places for the breeding of injurious bateria, and for this reason they are best left alone. Cleanliness is a very important matter in connection with all dairy work. A man should wash his hands and the cow's udder before milking. The cow yards and sheds should be kept clean, as milk spilt and left is an ideal breeding place for disease, and smells arising from sheds that are not kept clean will quickly have an injurious effect upon dairy produce. Buckets, separator parts, &c., should be washed and scalded after each milking. The digestive organs of a calf are very easily upset, and, therefore, a farmer should make a point of trying to follow nature as near as possible. Nature supplies milk in a warm and sweet condition, therefore we should try and feed the milk in that condition. A young calf, especially, should always be fed on warm milk. The calf, when it gets older, need not have the milk warm. Nothing will upset a calf quicker than to feed warm milk one day and cold the next; sweet milk one day and sour the next. A good plan to remedy these points is to feed shortly after milking or separating. Another point which is frequently overlooked by many farmers when hand-rearing calves, is that of water. Calves should always have an abundance of fresh water handy. If this point is overlooked the calves become thirsty as well as hungry, and when fed will probably gorge themselves with milk and cause internal troubles."

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CRYSTAL BROOK (Average annual rainfall, 15.62in.).

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Classing the Farmer's Flock and Wool.—At a recent meeting of the above Branch, the following paper was read by Mr. H. K. Dridan:—"To class Merinos properly requires a degree of skill which nothing but extensive practical experience can confer. Many of those who have opportunities of watching an expert sheepclasser at work may fall into the error of supposing that they can pick up all that is to be learned about the business in a few days, if not in a few hours. Therein they deceive themselves. There are many defects in sheep, both of carcass and wool, which cannot be clearly defined to the understanding of the wholly inexperienced person by any descriptions in writing. There are, however, certain glaring imperfections which can be indicated even in writing for the benefit of the tyro. If the sheepowner has not an opportunity of getting his sheep classed by an expert, he may, by observing these instructions, be enabled to detect and throw out of his flocks such sheep as are palpably bad. Sheep of the following descriptions may safely be rejected:—1. A very short-stapled, hard-woolled sheep. 2. Sheep that strip at the points and lose the belly wool, having a clean head without topknot. 3. Any that have black or yellow spots on legs or face. 4. Unusually small sheep. 5. Any that appear thin and constitutionally weak. 6. Sheep whose wool is thin and light. 7. Those who have short white hairs on the face, under the arm, and inside the thigh. 8. Any with very coarse wool about the breech and tail. 9. Any with long hairs appearing on the surface of the fleece. 10. Any sheep whose wool at shearing time is less than 1½in. in length on the ribs or wither. 11. Any long-legged, small-bodied sheep. 12. Sheep dipped in the back or otherwise misshapen. It is not unusual to hear people discanting on the merits of some particular animal, and winding up by declaring that the wool on him 'opened up like a book.' Either the phrase or the idea is incorrect. Wool, when you open it on the sheep, should not open in long layers; on the contrary, no part of the fleece should open but that which you actually touch, and no disturbance should be apparent at a distance of 3in. or 4in. from the hand. In a really good fleece, every fibre of wool should grow independently of any other, like hairs in a broom, and no two should be entangled with each other from root to tip. Sound wool of this kind would comb well if no more than 2in. in length. By carefully culling such defective animals out of your flocks yearly you will find both the quantity and quality of your wool improve rapidly. It is more than useless to keep them, since their progeny will most assuredly be worse than themselves. It does not require any great amount of skill, nor even of commonsense, to detect the above glaring imperfections. It is often said that the difference between a good sheep and a bad one is a mere matter of opinion, seeing that the qualities sought in sheep by one classer are entirely ignored by another. Every classer has a certain standard of perfection always in his mind's eye, and there may be also certain prejudices against sheep or weaknesses for sheep of special characteristics. For instance, with some classers fine wool is their special fancy, whilst with others length of staple is the ideal. A sheep should not be rejected because the wool does not appear to be up to the classer's standard if its other qualities are satisfactory. Quantity or yield per head must be considered as well as quality. In this State more attention has been given to robust wools than in any other State in the Commonwealth. The yield per head is in many instances superior to that which is attained elsewhere. South Australian studmasters have in the past, and continue to do so right up to the present, paid more attention to make and shape, size of frame, and other carcass considerations, than almost any other community of sheepbreeders in the Commonwealth. They may be surpassed by rival breeders in the adjoining States in the matter of character, quality, and uniformity of fleece, but in all other respects they have little to learn from those whose best products command such high prices at the auction sales, and by private treaty on the stud properties. In reference to ewes in lamb, it might be as well to say that, although the ewes may to all appearance be everything desirable in the matter of make, shape, and wool, yet particular attention is requisite at the time of lambing to observe closely if any of the ewes are bad nurses, to see that they have plenty of milk, and do not, in a normal season, get out of condition whilst rearing their lambs. A good sound constitutioned ewe should rear a strong lamb and yield a good fleece at the same time. Any ewe which strips her belly wool or loses her wool at the points (otherwise than through seed and burr trouble) whilst rearing a lamb should be discarded. Any ewe which throws a lamb with brown or yellow markings on face or legs should be discarded. All sheep without exception should be free from yellow or tan spots on legs or face. I will now endeavor to suggest a few helpful points in preparing the farmer's clip for market. In the first place, it is most important to have the shearing shed fixed up properly, both as regards the sheep pens and wool room. The sheep must be placed on gratings, and the wool room must be perfectly clean; a broom must be kept in the shed and used continually, and the shearing board swept after each sheep has been shorn. Do not start shearing operations until the shed is quite ready, bales placed in presses, tar pot on board, bale in a convenient position in which to place locks, second cuts, and board sweepings. These must be kept swept up continually. A good farmer will not talk to his shearers and neglect to keep his wool in good order and condition. The object of woolclassing is to get up the fleeces in such a way as to induce buyers to purchase at a price as high as they can possibly pay. In order to obtain the best results, the classing must be done scientifically and carefully. If done scientifically, a greater amount of competition will be assured, and if carefully, the general appearance of the wool will be such as to attract attention. If honestly, confidence on the part of buyers will result. The woollen trade is divided up into numerous branches, each requiring a different class of wool. First, topmakers, who scour and class the wool into its various counts, ready for the manufacturer to spin. Second, combers, who require wool of a fair average length and sound in staple. Third, carders; they require a short, or tender, wool, which is used in the manufacture of suitings and cloth. The farm flock usually consists of about 150 sheep to 1,000 sheep, mainly

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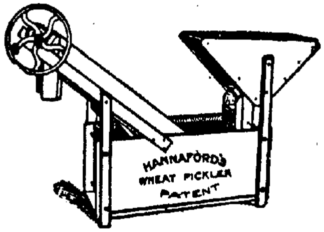

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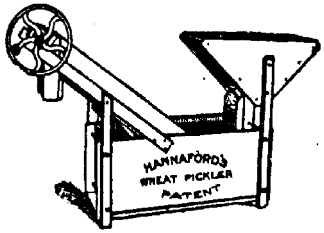

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Merino, and the following suggestions will apply to flocks about the size mentioned. We will first deal with the fleece as it is lying on the board. The fleece must be handled carefully. In picking up, the farmer will catch hold of the fleece at the breech with both hands, raise himself to full height, stoop and fold, and gather the fleece up with an inward pressure, carry it to the rolling table, and throw the fleece straight out in line with the shoulders, at the same time still holding on to the breech portion of the fleece. This should cause the fleece to unfold like a blanket. After the fleece has been thrown he will proceed to skirt all sweat edges, burrs, and stains therefrom, skirting as lightly as possible. Skirt from behind the shoulder, working towards the neck. When finished, fold the fleece back, and continue towards the breech, fold in about 9in. to 1ft. of wool as he continues around, and skirt the other side in a similar way. He will then have both ends folded. Then fold over twice, which will give a neatly folded fleece. Roll the fleece up reasonably tight from the breech towards the shoulder. This method brings the best wool (shoulder wool) uppermost. Every man has the right to make his produce look its best. Neatly place the fleece in its respective class. Before proceeding to class the wool, allow about 20 fleeces to accumulate, then it will be much easier to fix the lines. The fleece wool can be divided into the three following classes, usual trade terms:—AA, A, and C. AA will consist of the longest, brightest, broadest, and most attractive in staple, sound, of fine quality, light in condition, and of good color. A, medium in length, lean of staple, heavy in condition, sound and of fine quality. C will be the cast line, in which can be placed all heavy, dingy, stringy, of poor color, tender in staple, course in quality, seedy, fatty, and earthy fleeces. The wool skirted from the fleeces are branded 'Pcs.' This class must be free from stained pieces; the stained wool is placed in a class on its own, and is classed as stained pieces. The bellies must be kept gathered up, and all stained wool removed and placed in the stained pieces class. Ewes and wethers bellies will go in the one class. Locks consist of floor sweepings, table locks, second cuts, &c., from which all big pieces of wool have been removed. As most farmers have a few lambs, it will only be necessary to make one line. All lambs' wool must be removed from the shearing-board between two pieces of board about 6in. to 8in. wide, placed carefully on the table on which previously a bale or bag has been placed. Carefully remove all the clean wool, leaving only the stained, which can be placed in the locks. If the flock contains a black sheep, the farmer must use every care that not even a lock gets mixed with his other wool. He must bag it up where it has been shorn. On no account skirt stains from a black fleece. Rams' fleeces should be kept by themselves, and only the stain removed from the breech. The farmer cannot class his wool, ewes, wethers, and hoggets, so that it will be necessary to mix the fleeces, unless he has sufficient sheep of one class to complete a bale, otherwise he should brand AA Merino and so on. As a few farmers keep crossbreds, mainly for ration or export lambs purposes, I will just suggest briefly what had better be done as regards crossbred wool. One line will be quite sufficient for crossbred wools, except if there are two or three hundred fleeces, and then it would be wise to only make two lines, if a number were very strong in the count or fibre. The fleece will be lightly skirted, and the pieces therefrom treated as crossbred pieces free from stain. The bellies will only have the stains removed. Crossbred stains will be bagged by themselves. These lines will be branded as follows:—'X Bred,' 'X.B. Pcs.', 'Std. X.B. Pcs.', and 'X.B. Bellies.' Crossbred lambs will be treated like Merinos, stains placed in locks, and the locks baled separately. Pressing plays an important part. When pressing, each fleece must be placed in separately in layers of about six or more and then pressed around the edge of the bale only. This method, if done with care, will result in a very tight bale. Branding should be done neatly and stencil plates used. Neatness plays an important part, and tends to influence the buyer towards a well-prepared clip.'' Mr. Dridan then gave a practical demonstration of wool-classing.

NELSHABY.

September 9th.—Present: nine members and several visitors.

On the occasion of the inaugural meeting of the Branch the officers were elected for the forthcoming year. The Hon. Secretary (Mr. A. M. Lawrie) read a paper.

"The Objects of the Agricultural Bureau." A programme was then arranged for the next meeting, and a committee was appointed to draw up a programme for the next season.

NELSHABY.

September 30th.—Present: 13 members.

Haymaking.—Mr. T. B. Jose, who read a paper dealing with this subject, said that when the farmer was waiting to make a start haycutting, there was a danger of starting the binder too early in the season. If too early a start were made, a second crop of hay would make its appearance, which led one to think that the maximum amount of nutriment was not in the first cut of hay. It was usually contended that the hay should be cut when the wheat had just finished flowering, but he thought that was too early. He believed better results would be received if the crop was cut when the plants were just showing a tinge of golden color. Gluyas wheat, which was usually grown in that district, was a good hay wheat. It weighed well, the horses liked it and did well on it; it was one of the first wheats to be ready for cutting, but if left too long the flag withered. Other wheats, for instance, King's Early, retained their flag longer, which helped to increase the weight and fill the bags. Gluyas wheat, if it was to be fed long to the horses, should be cut early before it lost its flag and became too wiry. If intended to be chaffed for sale, or used as chaff, it should have plenty of grain, as the grain was really the principal part of the fodder, and helped to keep the horses in good condition. In the discussion that followed Mr. A. Wauchope expressed the opinion that Gluyas was a good hay wheat. Mr. A. M. Lawrie was of the opinion that King's Early and Gluyas were among the best hay wheats grown locally.

NORTH BOOBOROWIE (Average annual rainfall, 16.35in.).

October 5th.—Present: five members and visitors.

Seed Wheat Selection.—"I am of the opinion that it is better to select the seed for the next season's crop whilst it is in the straw, than when it is bagged up," said the Hon. Secretary (Mr. F. Clark) in a paper under the above heading. The speaker, in continuing, said that as the majority of farmers endeavored to grow their own seed, a portion of the crop, when it was out in head, should be selected. His idea of a good plant to harvest for seed was one that had stooled out well, not too lengthy in growth or carrying too much straw, and with a close and well-filled head. As the average farmer was able to estimate the yield of a crop fairly accurately, he should be able to tell within a few bags the quantity of seed required, and the area of crop to which it would be necessary to give particular attention. The piece of crop that had been selected should be inspected, and all the heads of barley or oats removed. As the season advanced the farmer would be able to pick out heads of other varieties of wheat that had become mixed with the seed during the sowing of the crop. The heads of drake, mustard, and other foreign plants should also be removed. By keeping the seed crop hand-picked, the farmer not only received the full market value for the grain, but he was very often able to obtain a better price for the seed wheat. The paper was well discussed. Mr. J. Thomas and the manager of the Booborowie Experimental Farm (Mr. E. A. Bristow) especially emphasised the importance of picking out the heads of barley from the seed crop.

YACKA.

October 20th.—Present: 20 members.

Saving Time on the Farm.—In the course of a paper dealing with this subject Mr. K. Giles said the proverb, "A stitch in time saves nine" was a maxim that could well be applied to the farm. If the proverb were put into practice the man on the land would benefit to a considerable extent. It was not uncommon for a bolt to break or drop out of an implement, and if a similar one was not on hand a piece of wire was used in its place. That would be quite all right in order to continue the work for the rest of the day or until there was an opportunity of procuring the right article, but too often the substitute was allowed to remain, with the result that after a time the implement weakened, became strained, and did not do its work in a thorough manner. Then time would be lost in having the machine overhauled, perhaps when it was urgently needed, and the expense would be greater than the initial repair would have cost. Then there were the fences. A dummy post or two might be required or a wire might need mending. Not for the want of a half hour to remedy the trouble, but more because of a lack of inclination to do the work, the fence was neglected. The stock would soon find the weak spot and stray into other paddocks, which meant a loss of time in locating them when they were wanted. The wire gates, with which most farmers were acquainted, frequently became broken and tangled, but too often instead of being properly repaired they were allowed to remain until they became nothing less than a wire entaglement. A good deal of time was lost in opening and shutting the gates, and where barb wire was used there was a considerable danger of injury to stock. Frequently when a breakage occurred in the harness it was temporarily repaired, whereas if a supply of rivets and spring hooks was kept on hand, the teamster would get into the habit of repairing the damage before starting work in the morning, or during the dinner hour. If the harness was given an occasional dressing of oil its life of usefulness would be considerably lengthened. The knives of the chaffcutter should be sharpened in readiness for the next time chaff was required, and a supply of sheaves should be kept on hand close to the cutter. Then there were days when it was too wet to continue working in the paddocks, or when work was completed early in the afternoon. On such occasions a horse should be put into the dray and the stables cleaned out. The horse troughs were often allowed to become very dirty, simply through a lack of inclination on the part of the farmer to spend five mnutes in attending to them.

BLOCK E, October 10th.—The Manager of the Berri Experimental Orchard (Mr. C. G. Savage) attended the meeting and delivered an address, "Summer Pruning," to an attendance of 30 members.

LAURA, October 9th.—Mr. J. Watt contributed a paper entitled "Our Inheritance in the Hills," and dealt at length with the problems of closer settlement and decentralisation, referring particularly to the land from Beetaloo Valley on the south to Wilmington in the north, where there was a good stretch of foothills of the Flinders Range that was ideal land for closer settlement.

WHYTE-YARCOWIE, November 4th.—At the invitation of Mr. R. Philbey the meeting took the form of a homestead gathering at his residence, near Ulooloo. An interesting half an hour was spent inspecting farm buildings, machinery, &c. The buildings, stables, and sheds were strongly built of stone and iron, on a well-drained situation, and conveniently appointed and roomy. After the inspection members were entertained at afternoon tea by Mrs. Philbey. The Hon. Secretary (Mr. E. J. Pearce) then gave a report of "Farmers' Day" at the Booborowie Experimental Farm on October 31st.

WIRRABARA, October 7th.—Mr. P. J. Curnow introduced a discussion on the subject, "Unsatisfactory Net Returns from Cream Sent to Butter Factories." The reports of the delegate who attended the Winter School for Farmers and the Annual Congress were also received and discussed.

LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT.)

BLACK SPRINGS.

September 5th.—Present: 24 members.

Hints for the New Settler.—Mr. J. M. Howard, who read a paper dealing with this subject, said first consideration should be given to the selection of a site for the water supply. Where the country was hard sinking and the water at a great depth, it was not advisable to sink a well if a boring plant was available. A rising situation, somewhere about the centre of the holding was the best place for the homestead. Next, the boundary fences should be erected, as a flock of sheep would bring in a very acceptable revenue whilst waiting for the crop. If at all possible, an attempt should be made to put in a sufficient area of crop to provide hay for the stock and seed for the following season. Considerable forethought should be given to the lay out of the various farm buildings in order to effect as great a saving as possible in both time and labor. Too large a yard should not be made around the homestead, or too much time would be taken up in keeping it tidy. The septic tank should be installed on every farm, and the stables, implement sheds, fowl houses, and pig sties should have galvanized-iron roofs, and be provided with plenty of ventilation. Referring to the fences, he considered that a very serviceable fence could be made with one split post every chain, and three iron droppers between the posts. The droppers should be punched to take five wires, two of which should be barbed. He suggested that the farmer should plant sugar gums a chain apart around all the fences, and in 10 years an excellent supply of strainer posts would be available. In addition to that, shade would be provided for the stock, and the trees would very considerably enhance the appearance of the property.

FARM HORSES.—In the course of a paper under the heading "Attention to Farm Horses," Mr. J. A. Heinruch said every farmer should give first consideration to his horses, for it was upon them that he depended, to a large extent, for gaining his livelihood. The animals should always be kept in good health and condition, and after being turned out for a spell they should not be worked too hard, nor for too long a period during one day. He did not think it advisable to allow the horses to drink whilst in an overheated condition on the first or second day after they had come in from spell; after the first couple of days they could be watered as soon as they came in from the paddock. It was a mistake to give a horse too much chaff at a time. The feed put in the manger should be eaten at one meal, for the horses were not fond of chaff left over from one meal to the next. It was a good plan occasionally to add a little salt to the chaff if the chaff had not been treated in that manner when

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placed in the chaff house. He considered that about two double handsful of oats and bran added to the chaff made a fair ration for the horse. The team should be groomed every morning after being fed. He had found an old straw stack a good thing for the horses to rub against, and also suggested the provision of a sand pit in which the horses could roll. Provided the horses agreed with one another, he was not in favor of tying them up in the stable. Horses with sore shoulders should be worked in a breast-plate made with two wheat bags. The seams on the sacks should be cut off, one bag being placed across the wither and the other across the breast. Hooks could be made with ⅜in. iron and bolted on to the bags. "Last, but not least, treat the horses with kindness and they will serve you well."

CLARE (Average annual rainfall, 24.30in.).
August 4th.—Present: 15 members.

HOW TO MAKE COUNTRY LIFE MORE ATTRACTIVE.—Mr. J. Hamlyn contributed the following paper on this subject:—"The welfare of the State depends upon the productiveness of the country, and as country life is essential to the community, it is our duty and privilege to make country life the brightest and best of all livings. As members of the Clare Agricultural Bureau, it should be our business to imbue ourselves with the idea that we are following the very best occupation in the whole world, and with this end in view we should try and obtain the best ideas available upon the various matters which concern each of us, and be prepared to disseminate any knowledge which we have proved to be valuable. I am of the opinion that we should try, firstly, to increase the interest in our meetings; secondly, to increase our general knowledge by the interchange of ideas gained from personal observation; thirdly, by social intercourse, add to the pleasures of our daily life. Our meetings should be made more attractive and useful by having a set programme for the year's meetings, taking care the subjects deal with the class of work which may be our special care at the period of the year when the meeting is held; thus at this meeting the question of pruning and spraying might very profitably be dealt with, and whilst we should pay the closest attention to our main lines, the side lines should not be lost sight of. We could well notice the claims which cattle, pigs, and poultry have on our daily lives, and endeavor to gain such knowledge as should help us to make the side line a very profitable part of our occupation. I believe that a year's programme could be arranged and printed, and by so doing save our secretary a deal of work. If it was found, on closer investigation, that this was impossible, then I would suggest that the next meeting's programme be outlined before a meeting is closed. This would also save our secretary a little of the work which now falls to his lot. I consider that we should have more 'Homestead Meetings.' These could be arranged so that we could inspect the work done by different gardeners at different periods of the year, so as to meet with the chief work of the gardens and vineyards. At the present time much benefit could be derived by an inspection of the pruning being done and also by noticing what had been done to combat the 'black spot,' or any other trouble which might require attention. These inspections could be made on a Saturday afternoon. After the inspection is completed a meeting could be held in a barn, or the most convenient place available, when matters of an interesting nature which may have appeared during the course of the inspection could be more fully discussed, and I feel sure that much good would result. I am a strong believer in the idea that we cannot make our homes too attractive and bright, and though we must put our very best into that which produces our bread and butter, we have a moral right and duty to perform with regard to our wives and daughters. Our trips of inspection could be made a source of great pleasure to the 'home folk' if on our inspection trip we also invited at least one or two members of our homes to accompany us. Every unit forming the party could take along a small basket of provisions. Whilst the male portion of the party are occupying their time about the property under notice, the ladies could meet and chat together while preparing a light repast to be partaken of by the party after the inspection is completed, and the ladies could find much to interest themselves in discussing their individual methods of jam, sauce, or pickle making, butter making, or the care of the poultry yard, and the evening could then be passed in social intercourse. Gatherings of the kind I have indicated would bring about a very happy consummation of the query, 'How can country life be made more attractive?' Homestead meetings on the lines I have indicated need not be the cause of much expense or inconvenience to anyone. Most gardeners have the Saturday afternoon free, and many possess a barn if a room cannot be found large enough for a gathering. Owners should be consulted several weeks beforehand so that they may have ample time to make what arrangements they may desire beforehand. A committee should be appointed for these meetings to prevent the general officers being too heavily taxed. My last point is that we should not fail to make the best possible use of the daily as well as other public press, and our meetings should be amply reported. I think we might make a point of discussing any matters which appear in the *Journal*, and in case of any differing views being advanced, the points at variance could be discussed through the *Journal* with decided benefit to all.'' During the discussion which followed Mr. R. O. Knappstein said that homestead meetings were of the utmost value to a Branch, and the more that could be arranged the better. The Hon. Secretary (Mr. H. Lewcock) said that a programme should be arranged as suggested by Mr. Hamlyn. Mr. Menzie said that a syllabus could be arranged and tried. Homestead meetings were most desirable because they got the members together and by getting them to do something they became more interested. Mr. F. J. Knappstein also thought that homestead meetings should be arranged more often. He suggested that a question-box be placed on the table and opened at every meeting.

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OWEN.

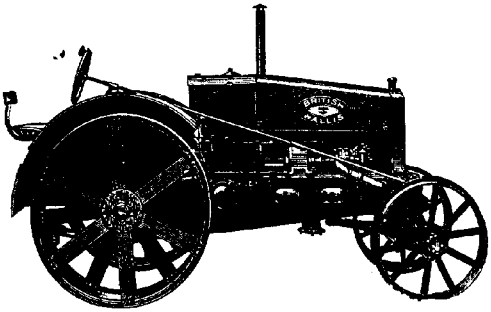
October 6th.—Present: 11 members.

Question Box.—"Is it advantageous to leave bare fallow untouched for any length of time before harrowing?" In speaking to the question Mr. J. Smyth thought the longer fallow was left in a rough condition the better. Mr. T. A. Freebairn considered that the matter was one which depended on the type of soil and season of the year. He favored leaving early fallow as long as possible, but late fallow should be harrowed almost immediately, as weeds grew apace about that time. Mr. H. A. Helps thought the sooner fallow was harrowed the better. It buried the bigger weeds and the seeds. The seeds would germinate with the next rain, and the farmer would then have a better chance to clean his land. Mr. W. J. Marshman said it depended on the nature of soil. As a general rule the sooner the land was harrowed the better, as it allowed a better germination of seeds before the rainy season ceased. Harrowing prevented evaporation and assisted in the conservation of soil moisture. Mr. H. S. Harkness thought that no definite rule could be laid down, as some soils could not be harrowed satisfactorily without rain to soften the clods. The fallow should be harrowed and worked down as the warmer weather commences, to lessen evaporation. "The best method to make a haystack mouseproof?" Mr. H. Bowyer thought that the expense of iron and posts to make stacks mouse-proof was money wisely expended. Mr. S. C. Lacey thought that if galvanised iron was placed around the bottom of the stack, with fencing standards to keep it in position, the iron let into the ground, and the joints covered on top with a piece of tin curled outwards, mice would not be able to climb up the joint and thus get into the stack. He stated that mice preferred to get out of the stack for a run at night. Sticks sloping downwards could be stuck into the stack. The ends of the sticks should be 2ft. from the ground. The mice would then run down the stick and jump to the ground, but they would not be able to get back into the stack. Mr. W. J. Marshman stated that in Victoria the method adopted was to use bullnosed iron. The sheets should be placed erect, with the nose pointing outwards. He thought that the iron should be let into the ground 3ft., as rats would burrow 1ft. straight down. Another plan was to put the iron 3in. into the ground and then place wire-netting under the stack, so that the rats could not get up into the hay. Question 3—"What is the best stage to cut wheat for hay?" Mr. J. Smyth thought when the grain was in doughy stage. Mr. W. J. Marshman favored cutting about a week before the bloom commenced to fall. The grain was then soft and milky. Mr. T. A. Freebairn thought about a week after bloom had fallen. If cut before the bloom had fallen, mice did not trouble the hay so much, as there was no grain. Question 4—"What is the best kind of pig to breed for export bacon to England?" Mr. W. J. Marshman thought that a cross between a Berkshire boar and either a Tamworth, Large York, or Large Black so. Mr. H. Bowyer said the Tamworth always brought a good price. The Tamworth crossed with Berkshire also produced a good pig. Bacon curers liked long pigs with good sides, well proportioned, and well let down. Question 5—"Do crops respond to supers as readily of late years as they did 20 years ago?" Mr. T. A. Freebairn thought they did. Super was easier to add to soil, and was used more extensively. Mr. T. S. Harkness thought soils were gradually improving, owing to the use of superphosphate. There was a better class of feed now than there was 10 years ago. That was due to the improvement of the soil. Crop yields were also becoming higher. Mr. H. Bowyer thought that manures had not brought the soil up to the same standard as it was when virgin. Mr. H. Helps said that only 30lbs. of manure was used to the acre 20 years ago. Crops did not respond as much proportionately now as they did then. Mr. W. J. Marshman thought that something more than superphosphate was needed.

TARLEE.

October 3rd.—Present: 15 members.

The Fat Lamb Trade.—Mr. H. Humphries read the following paper on this subject:—"The first problem which confronts the farmer who intends to breed lambs is the selection of breed. It is generally admitted that the pure bred Merino is not suitable for breeding fat lambs. The best results are obtained by crossing with one of the English breeds. The best ram for this district is



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the Dorset Horn. He is noted for the number of twins and the quick growth of the lambs. The advantages of using the Merino ewe are that she cuts a good fleece, and that the lamb is born a few weeks before the other breeds. Dipping is very important, because the loss of wool through lice and tick affects greatly the profit in the flock. It also improves the quality of the wool. The best time to mate the ewes and ram is during the latter part of November and early December. The ewes should be in good condition, but not too fat, because this is fatal to a high percentage of lambs. Two rams are sufficient for a hundred ewes. If more than one ram is kept it is a good plan to keep only half of them with the flock at mating time, the remainder being kept away for a few days, after which they should be changed. In this way the rams can be kept fresh and in proper condition. This also keeps them from fighting. After putting the rams with the flock, which is best done in the evening, they should be inspected often and yarded at night, if convenient, without allowing them to lose too much condition. An endeavor should be made to get most of the lambs within a month or so, although it is best to leave the ram in for about six weeks. It is very important that the ewes should not lose condition at any time before lambing, because the ewe gets a check which affects the weight of the wool at shearing time, and she has not the reserve strength to rear her lamb. Unless the rains come early the feed will be scarce, and at this time it is advisable to commence hand feeding. Peas are the ideal fodder at this time, but if they are unobtainable, a pound or two of chaffed hay per sheep will help them along. This, fed in long bag troughs, sheltered from the wind, is all that is necessary, provided the flock has the run of some pasture. It is a very good plan to reserve a paddock near the house, if possible, with good feed for the ewes when they commence lambing. The flock should be inspected frequently on cold mornings. A drink of milk from an olive oil bottle will often revive a lamb which might die from the cold. The lambs should be tailed when two or three weeks old. If the knife is used, care should be taken to see that it is clean. If the tailing is done on a cool day the lamb will not bleed so much. It is advisable to sow some early barley or oats for the ewes and lambs after they have cleaned out the lambing paddock. The ewes and lambs should have the first pick of all the best feed, and if there is a crop of peas they can be turned on to it, and it will do very well for fattening them off for market. There is a good demand for prime fat lambs in England, and the high prices they realise there will keep up the price in the local market.'' During the discussion which followed Mr. W. G. Branson said that a large framed and good constitutioned Merino about 3 years of age was a suitable ewe to mate with an English breed of ram such as the Dorset, Shropshire, or Leicester. They should be mated with the rams about the middle of November. Mr. W. S. Kelly also spoke and dealt with the possibilities of the export trade, and emphasized the importance of catering for the British market and the grading of lambs. The Merino lamb, when frozen, he said, did not compare with the crossbred. Mr. L. Molineux would mate the ewes early so that the lambs would be dropped in April. They could then be hand fed during the dry months. Mr. John Kelly favored the Dorset. Mr. Angas Clarke said export lambs could be reared profitably, but it was necessary to conserve fodder to carry them over a dry season.

TWO WELLS (Average annual rainfall, 16.36in.).

September 19th.—Present: 16 members, five visitors.

The monthly meeting of the Branch was held at the residence of Mr. A. Pratt. On arrival at the farm the members inspected the farm buildings and garden. Dinner was provided by the Misses Pratt, after which an inspection was made of the experimental plots conducted by Mr. Pratt. The following varieties of cereals were noted:—*Oats*—Abundance, Broatches' Prolific, and New Norway King. *Wheats*—Broatches' R.G. Red, Broatches' Early, Broatches' Prolific, Broatches' Newest Fall, Broatches' Marvel, C.L. 193, Broatches' New Fall, Broatches' Fall, Kitchener, Taylor's Wonder, Kanred Fall, Red Rock Fall, Marquis. Other plots included Excelda flax, Hubam clover, Arctic clover, Alfalfa, Hardy Cossack clover. All the plots were sown with seed imported direct from Canada. Several other selected varieties of local oats and wheats were also being grown, including Early Burt oats and Federation (Pratt's selected), which gave promise of good results. Tea was then partaken of, and Mr. J. Hart

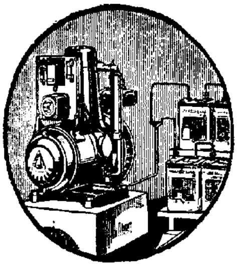
Chairman), on behalf of the members, thanked Mr. Pratt for the instructive fternoon they had spent. Mr. Dawkins (Vice-Chairman) and Mr. H. W. Kenner Hon. Secretary) also spoke in support of the Chairman's remarks.

WILLIAMSTOWN (WOMEN'S).

October 4th.—Present: 17 members.

On the above date members visited Tweedvale and made an inspection of the ocal woollen mills under the guidance of the Manager (Mr. Redpath).

Yeast Bread and Cake Making.—At a previous meeting of the Branch a paper n this subject was read by Mrs. Filsell. The paper read as follows:—Ingredients equired for yeast bread—3lbs. of flour, 3 teaspoons of salt, half a pint of yeast, and enough lukewarm water to make a soft dough. Method—Weigh and sift the lour and put into a dish. Add salt, and rub it in well. Then make a hole in the middle of the flour and pour in some luke-warm water, then add the yeast, and gradually add more water until all the flour is worked into a soft dough. Knead well and add more flour until the moisture is absorbed, then stand in a warm place nd cover with a thick cloth for 12 hours or more, or until it has risen. When isen lift it on to a floured board and knead slightly, making it into the required hape. If tins are used, grease them well, two-thirds fill the tins, and let them tand in a warm place until the dough rises above the tin. Place them in a hot



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oven for 5 to 10 minutes, then gradually decrease the heat until cooked. Allow the bread to cook about one hour. This mixture will make two medium-sized loaves. Ingredients for yeast:—3 or 4 potatoes (unpeeled), a small handful of hops, a little over a pint of water, 1 tablespoonful of flour, 1 tablespoonful of sugar, 1 teaspoonful of salt. Method—Boil the hops for about 15 minutes, and then strain them. Then boil the potatoes, mash them, and mix in flour, sugar, and salt. Then pour on the cool or lukewarm yeast. After being bottled it can be stood in a warm place. Another recipe for yeast is as follows:—1 small handful of hops, 1 quart of water, 3 tablespoonsful of flour, 3 tablespoonsful of sugar. Method—Boil the hops and water together for 20 minutes or until the hops fall to the bottom. Strain and allow them to cool. Blend the flour and sugar by using a little of the hop liquor. Stir all well together. Bottle, cork and tie down well. Stand it in a warm place and it will be ready for use in 24 hours. Recipe for coffee or yeast cake. Ingredients:—3½lbs. of flour, ¾lb. butter or dripping, ¾lb. sugar, 4 eggs, ½ pint yeast, ¼lb. currants or sultanas, a little nutmeg and salt, and enough warm milk to make a soft dough. Method—Put the flour into a dish and make a hole in the middle of the flour. Put in sugar, butter, eggs, currants or sultanas, yeast, nutmeg, and salt. Work all the ingredients well with some warm milk until the sugar and butter, &c., has been well dissolved, and then gradually work the flour in with more milk, mixing all up together until you have a soft dough. Allow this to stand all night to rise. When risen lift on to a floured board and knead slightly, and then roll to what size sheet you need and stand in a warm place to rise. Cook in a hot oven 5 to 10 minutes, then gradually decrease the heat and allow to cook for a little over half an hour. Top for coffee cake. Ingredients:—¼lb. butter, ½ cup sugar, and ¼ cup flour. Method—Rub butter, sugar, and flour together until it forms little lumps. To keep the top for coffee cake on, either brush melted butter or milk on it before putting in the oven, and then sprinkle on the top mixture.

WILLIAMSTOWN.

November 3rd.—Present: 26 members and five visitors.

POTATO CULTURE.—A paper was contributed by Mr. J. Johnson. Mr. Johnson made reference to the important part which the potato played as a foodstuff for human beings, and then proceeded to discuss the cultivation of the crop in the following terms:—"*Cultivation.*—It is almost unnecessary for me to refer to the cultivation of the land before planting, but this is most important. If the land is not in good condition delay the planting until it is. Land can be worked better before it is planted than after. The potato beds should be well harrowed, just when the plants are coming up. This will help them and destroy the weeds, and very little hand hoeing will be required. As to the distance between the sets, for Pinkeyes, Up-to-dates, Carmens No. 1, and Delaware the rows should be 22in. to 24in. apart by 12in. Snowflakes, Prolifics, and Carmens No. 2 require more room. Seed are often planted too closely. Better results would follow if more room were allowed. The early planting during the wet season should be as shallow as possible. I would not plant to a depth of more than 3in. for an early planting; later in the season 4in. to 5in. is permissible, but I would rather plant shallower than deeper at any time. Deep planting is often the cause of irregular crops. You will always find the best potatoes near the surface. This shows that deep planting is not required. Cut sets always give the best results for spring planting, and the size depends on the number of eyes. About a 2in. set is ample. Two good eyes are sufficient. With some varieties one will prove sufficient if it is well 'shot.' If the seed is not ready to plant, keep it out of the land until it is; you will market your crop sooner, and most likely secure a better one. Never plant round seed from a poor crop. At all times a change of seed is of great importance, and if possible it should be imported. There is a lot of difference between seed potatoes and potato seed. Seed potatoes are those saved from tubers that grow on the land. Potato seeds are those found on the tops, and will only be found in beds that have bloomed well under favorable conditions. It is from these that we get new varieties. Time is required to raise seedlings, and plants raised from seeds usually possess more vigor as well as greater yielding powers, and are less liable to disease than old varieties grown from the same tubers for many years. The varieties tend to deteriorate, and although it is greatly retarded by frequent change of seed and general good cultivation it is advisable constantly to experiment with new sorts. The potato is a most speculative crop to grow, both from the viewpoint of yields and value, but with the class of land that we have I do not know of one more profitable. In a favorable season, and on good potato soil which has been well tilled and manured, 12 tons to 16 tons per acre may be grown. Early crops are more subject to blight than those planted later. Spraying at the proper time has proved a preventive of disease, and it also adds to the yield. The potato will grow in almost any soil, but it is more likely to contract disease in stiff than in a light soil. A good mixture, if necessary, to use as a spray is 2lbs. of sulphate of copper dissolved in water in a wooden vessel, and 4lbs. of washing soda in 20galls. of water. For an average crop in full leaf 100galls. per acre would be required. Over-manuring and planting too closely will encourage disease. The most prolific varieties for early planting are Manistee, Delaware, Up-to-Dates, Carmens No. 1, Pinkeyes, and Scottish Triumphs, and for late planting Up-to-Dates, Snowflakes, Cook's Favourite, White Prolific, and Carmen No. 2. If greater care were taken of seed before planting, better results would follow. Seed for early planting should be secured a month or two before planting, and placed on trays or lofts with plenty of ventilation. Galvanized-iron cases make good trays. The bottom boards should be removed, and sufficient replaced to allow a free passage of air between them. They can be placed above each other, plenty of space being allowed between them. Each will hold a sack of potatoes. They can easily be examined and turned if required without much cost. Banana cases can also be used in the same way. The seed can be kept for six months if required. Cool storage is recommended for seed for summer planting. Seed given plenty of ventilation and allowed to harden before planting will become more healthy and less likely to disease, and less likely to rot when planted in wet or dry weather. Seed saved from a crop before it is properly matured will give better results than from one left in the land after the tops have dried off. During the hot season I have seen excellent crops from potatoes saved from those that were cut by frost when half grown. Boxes should be used when the seed is being taken out to

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be planted. The shoots are saved in this way, and heavier yields can be obtained. When planted 2ft. x 1ft. an average return of 1lb. per root would be equivalent to 8 tons per acre.'' The writer of the paper then dealt at length with the manurial requirements of this crop, mentioning the outstanding advantages of applications of stable manure. If that, bonedust, and ammonia had been freely used, a dressing of lime was advised. He discussed the chemical and physical effects of lime on the soil, but warned growers against relying on lime only as a means of increasing yields. ''Where natural drainage is not present,'' the paper continued, ''it pays to provide underground drains. Ploughed furrows are not sufficient; they are too shallow. The drains should be at least 3ft. or 4ft. deep. Stones, where they are plentiful, answer very well. Clay pipes are the best, but are rather expensive. I have used slabs 18in. long, and these make excellent drains. The drier the land is kept during the winter the better. It will retain the moisture during spring, when the crop is growing. We have hundreds of acres that would grow potatoes equally as well at the potato land in Victoria. I am sure it would pay to make more of a study of growing potatoes. We import thousands of tons from Victoria each year, and local-grown potatoes are worth more than imported for table use. Land in Victoria is worth £40 to £60 per acre for growing potatoes, and ours is often the best market for them.'' The paper concluded with a short statement of the dietetic value of the potato.

SADDLEWORTH (WOMEN'S), October 10th.—JAMS AND PRESERVES.—Mrs. Fraser contributed a paper on this subject, which caused a good discussion. The officers for the ensuing year were then elected.

STOCKPORT, October 9th.—Captain S. A. White, C.M.B.O.U. (Vice-Chairman of the Advisory Board of Agriculture), attended the meeting and delivered an address, illustrated with lantern views, ''The Economic Value of Our Native Birds.''

WATERVALE, November 6th.—The subject, ''Spraying Fruit Trees and Vines,'' was brought up for discussion. It was decided to call a special meeting with a view to adopting some scheme to destroy birds, which were doing a great deal of damage to the orchards and vineyards. It was also decided to make an endeavor to hold the flower, fruit, and vegetable show during March, 1923.

YORKE PENINSULA DISTRICT.

(TO BUTE.)

ARTHURTON, October 18th.—Mr. K. Roads gave an address, ''Diseases of Wheat,'' and an interesting discussion followed. The report of the delegates to the Annual Congress was also received and discussed.

PASKEVILLE, October 3rd.—The Hon. Secretary (Mr. J. Prouse) read an article from the *Journal of Agriculture*, ''Pigs and Their Management,'' and an interesting discussion followed.

WESTERN DISTRICT.

BUTLER (Average annual rainfall, 16.61in.).

October 2nd.—Present: 10 members.

HAYMAKING AND FODDER CONSERVATION.—Mr. V. R. Stewart, who contributed a paper dealing with this subject, said prior to the commencement of haymaking operations the binder should be overhauled and placed in thorough working order. The oat crop, he thought, should be cut when the top of the oats turned white; the straw would then be drying at the bottom, and a yellowish color would be noticeable on the bottom flag. He considered it advisable to commence cutting the hay a little on the green side, because if a hot, windy day was experienced it would ripen off the balance of the crop very rapidly. Wheat intended for hay should be cut when the grain was in a doughy condition. Stooking could be done about a day after the hay had been cut, 25 sheaves to 30 sheaves being placed in each stook. If the hay was to be left in the paddock until after harvest, stooks containing from 40 sheaves to 60 sheaves should be made. All hay should be left in the stook at least 10 days before carting into the stack. In building the stack, the centre should be kept well filled. so that any rain falling on the wall would run off. All sheaves should be given a dip outwards. He preferred round corners, because if the stock got into the hay yard they would not cause so much damage to the corners of the stack, and if the bottom was well filled the sides would bulge out as the stack settled down, and run the water off clear of the bottom. The centre of the stack should be well filled before roofing, and as the eaves were put on they should be dipped outwards to run off the water. He suggested roofing the stack with the bottoms of the sheaves facing outwards. A little careful placing and butting would do away with the ridge at every layer. A thick layer of straw should be placed on the top and covered with wire netting. Where only a single wire was used it made a hollow, and caused the water to run into the stack. The netting could be rolled back every time a fresh supply of hay was needed. Referring to conservation of fodder, the speaker was of the opinion that hay was the best method of storing reserve supplies of fodder in that district. It was a good plan to build a haystack and make it mouseproof. The cocky chaff should also be conserved, as it formed a valuable form of fodder during periods of drought.

KOONIBBA.

August 18th.——Present: seven members.

Care of Horses' Feet.—Mr. J. Bergmann read portion of a paper dealing with this subject. A short discussion followed, during which the speaker amplified his remarks by blackboard drawings.

At a meeting held on September 15th, Mr. Geo. Foggo contributed a paper. Fallowing, he said, should be commenced as soon as seeding operations were finished. Although early fallow was the best, he thought there was a great deal of benefit to be derived from land ploughed any time between seeding and hay harvest, provided the land was not too heavily coated with grass or other weeds to be handled. As thunder storms often occurred during the summer and early autumn months, the land, being ploughed, allowed the rain to enter, and if time permitted the land could be gone over with the harrows, so that it would hold the moisture. The land could be worked more easily at seeding time than if it had not been ploughed. The depth of ploughing varied according to the class of land, but he thought that 3in. was the most suitable depth for the larger portion of the land in that district, especially the mallee land. One of the main points to keep in mind was to see that the plough cut the furrow cleanly and turned the land over properly. The early fallow would have to be worked over again, and for the second working he preferred the cultivator, because it would do better and quicker work at the shallower depth than a plough, and did not leave the land so open and loose. The firmer class of land should be well harrowed down after

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cultivating, but sandy land would be better left alone, because it would not be so liable to drift. After the final working sheep could be allowed to run on the fallow to keep down the weeds, compact the soil, and make a good solid seed bed. During the discussion which followed, Mr. Hoff said he believed in allowing the ground to air for a while after ploughing, and before putting in the seed, especially where there was a likelihood of the land being sour. Garden land should be dug or ploughed up as soon as the plot was clear. It was not advisable, he said, when working the fallow a second time, to plough so deeply as when the land was first worked. Fallow land should always be worked after a fall of rain. Mr. Geo. Foggo thought that sour land was found chiefly in wet districts.

KOPPIO (Average annual rainfall, 22.40in.).

October 3rd.—Present: six members.

Farm Bookkeeping.—In the course of a paper dealing with this subject, the Hon. Secretary (Mr. M. T. Gardner) said without some system of bookkeeping it was very difficult for the farmer to ascertain his financial position at the end of the year's work. Where only the passbook and cheque heels were kept as a record, the farmer could tell how much money was received and how much money was paid away, but it was not possible to tell from where the money came or where it went. He considered it was necessary for the farmer to have two accounts, one for the house and one for the farm. The expenditure for each section should be kept separate, and so it would be necessary to make a note on the heel of the cheque indicating what the cheque was drawn for and to whom it was made out. On many farms there were only a few items of revenue, and on those bookkeeping was a very simple business; but other farms were earning revenue all the year round, and it was on such well-run and prosperous farming propositions that a careful and complete tally should be kept of all revenue and expenditure. To do that successfully it was necessary to have two cash-books, in addition to the ledger, or two cash accounts could be made out in the ledger. When cash, cheques, &c., were received an entry should be made under either the cash account, "petty cash," or "cash banked." In the latter instance, the cash banked should be entered with the following details:—How much, whom from, and what for. The account should be written up whenever money was remitted to the bank, and by that means one would be able to tell at a glance how much had been paid in, what percentage of income from each line, and what each undertaking had realised. The petty cash account was more difficult to handle. No bank official touched it, so that one had to be extra careful to keep a faithful record. Every penny of revenue cash received for small items should be entered under the heading of petty cash and totalled up at the end of the month. Likewise an equally strict account of all cash paid out under the same heading should be kept and the account balanced monthly. Any deficiency should be paid with a cheque drawn for the purpose, and any surplus should be shown either as cash banked or cash in hand. Farmers would save themselves endless annoyance if they kept a record of the whole of their business transactions throughout the year. When agricultural returns had to be made out it would be much easier to read the figures out of a book than to try and give the information from memory. It was not much trouble to have a book or slate and jot down each day how many eggs were laid, and each week the totals could be made up and entered finally in a suitable book. The same could be done with the milk yield from the dairy herd. With the aid of a small spring balance it was an easy task to weigh the bucket of milk and enter the weight on record. A few moments spent each week would be sufficient to enable the farmer to write up all records and entries in the books necessary for farm booking on the simple lines that had been pointed out. The petty cash alone required a little thought and constant attention whenever business was transacted.

MILTALIE (Average annual rainfall, 14.55in.).

September 30th.—Present: 10 members and two visitors.

Homestead Meeting.—The monthly meeting of the Branch was held at the residence of Mr. J. P. Story, when a paper entitled "Farm Tractors" was contributed by Mr. H. R. Hogan. Working with an 8-disc cultivating plough, he said the tractor would travel from 4½ to 5 miles per hour when ploughing at an average depth of 2¼in. Between the hours of 9 a.m. and 5 p.m. he was able to plough between 11 and 12 acres per day, whereas with horses about 7 acres would be the average between the same hours. The machine used approximately ¾gall. of kerosene to the acre. After seeding operations were finished he ploughed a 45-acre paddock, which took 40 hours to complete. During that time the tractor consumed 54galls. of kerosine, 1gall. of C.C. oil, 2 pints A. oil, and 1gall. of petrol, costing £5 19s. 6d. The wages of the driver for 4½ days, at 13s. 4d., cost £3, making a total of £8 19s. 6d., or 2s. 8d. per acre without the driver, and 4s. per acre with driver. Fivepence per acre could have been saved if power kerosene had been used, and since that test the price of kerosene had been reduced. The tractor was very easy to handle, and he could see no reason why the upkeep should be very great with careful handling. One advantage was that work could be commenced early and finished as late as desired. He thought the tractor could be worked successfully on all but hilly or sandy land. In dry districts water carting took up a considerable amount of time, but the use of a tractor would obviate that to a great extent. The farm would also be kept more free from weeds, because there would be no necessity to buy chaff. A pulley attachment could be procured, thereby doing away with a stationary engine. During the discussion which followed Mr. J. P. Story said he thought tractors would be cheaper than horses for farm work. Mr. T. J. McEachen thought the tractor would be an advantage over horses in opening up new country, because it would help to overcome the problem of horse feed and water.

MOUNT HOPE.

October 14th.—Present: 10 members and nine visitors.

Question Box.—The meeting took the form of a Question Box evening. Several subjects were brought forward for discussion. In reply to a question as to the best breed of ram to use in that district, Mr. Myers expressed a preference for a Merino, free from wrinkles, and procured from the northern districts. He considered that large-framed, clean-bodied rams should be mated with the ewes in their district. In discussing the relative advantages of marketing cereals through sheep, or selling them as grain, Mr. Mahoney thought the best plan was to adopt a system of intense culture and feed the sheep, as that was more profitable than growing the crops for grain. Sheep did not receive proper attention when large areas were put under crop. Mr. H. Myers, in discussing the question as to the best lambs for the freezing works, was of the opinion that the Merino-Shropshire cross would be most suitable. Mr. W. Mahoney dealt with the subject "Tractor versus Horses," and considered that the horse could not be done away with at the present time. Mr. J. H. Vigar, in dealing with the question of the value of the fox to the farmer, said the fox had proved useful on his farm by keeping rabbits in check.

WIRRILLA.

September 2nd.—Present: 13 members.

Combine versus Drill and Cultivator.—Mr. J. Mitchell, in the course of a paper dealing with the above subject, was of the opinion that the combine was the better machine in clean land. He said the land had to be worked to prepare for seeding, and if the combine was used the farmer would gain in many ways. The spring-tooth implement, he said, was the best because it was light and the drill tines were behind the cultivator, and the seed did not have to be sown so deeply as with the cultivator. A 9ft. spring-tooth cultivator would cost approximately £42 15s. and one 15-hoe drill about £71 5s., or a total of £114, whereas the cost of one 15-hoe combine was only about £90, representing a saving of £24. Seven horses would be required to work the 9ft. cultivator and four for the drill, making a total of 11 horses, with two men to drive them, whereas one man and eight horses would be able to work a 15-hoe combine. Mr. A. Hall, who favored the cultivator and drill, said that the combine was not a suitable machine for killing the weeds, and it did not sow the seed at an even depth. With the drill and cultivator one could cultivate the land and drill to any depth required. Spring-tooth cultivators were not suitable for seeding purposes if sheep were allowed to run on the fallow, because the heavy rains, combined with the sheep, would set the land too hard to enable the implement to do good work.

He thought a combine would be a great saving in sandy or light soil where there were not many weeds. During the discussion which followed Mr. Moore said that he had sown 275 acres with a combine and nine horses and one man. The majority of the members were in favor of the drill and cultivator.

YADNARIE (Average annual rainfall, 14.09in.).

October 3rd.—Present: 10 member and two visitors.

The Tractor for the Farm.—In the course of a paper dealing with this subject, Mr. G. B. Kobelt expressed the opinion that when the tractors were improved they would come into more general use on the farm. At the present time there were a fair number of tractors in use on farms that were free from stumps and in districts where there was an abundance of horse feed. The tractor could be used as a second team on the farm, and there was no doubt that with the engine the crop could be put in more quickly at the right time. In the discussion the Hon. Secretary (Mr. W. E. Hier) said the tractor, beside doing work in the fields, would also be available for work that required power, such as chaffcutting, &c. He considered that the land would need to be fairly free from stumps before the tractor could be used satisfactorily. Mr. J. E. Quick had seen good work that had been performed with the tractor, but he did not think the mechanical power would replace the horses in that district until the land was cleared of stumps, &c. Mr. P. G. Dolling believed that the time would come when the tractor would be in general use on the farm. Mr. O. Forbes also considered that the tractor would be useful as a second team on the farm.

YEELANNA.

October 7th.—Present: 15 members and six visitors.

In the course of a discussion on the subject, "Is the Growing of Barley or Oats after Wheat Profitable?" members considered oats to be the better crop to sow after wheat in that district. Barley was subject to takeall, whereas oats was not generally affected. Oats was the more useful grain to feed to stock, and as oaten straw burned well, it was of great advantage in killing mallee shoots and bushes.

CLEVE, October 12th.—The evening was spent in listening to an address delivered by Mr. L. E. Cowley, in which the speaker gave an interesting account of a recent trip he had made to Victoria and New South Wales. Mr. S. Quinnell then gave a report of the Annual Congress.

LIPSON, October 14.—The first meeting of the Lipson Branch was held on October 14, when the following officers were elected:—Chairman, Mr. S. F. Potter; Hon. Secretary, Mr. W. R. Blacker; committee, Messrs. A. B. Wishart. H. Swaffer, and W. A. Oswald.

O'LOUGHLIN, September 6th.—The annual meeting of the Branch was held at Mr. O. Leopold's residence, when the Hon. Secretary (Mr. O. Leopold) presented a report of the work performed by the Branch during the past year. The officers were elected for the ensuing term.

Another meeting of the Branch was held at Mr. A. Kloeden's homestead to October 4th, when arrangements were finalised for the local crop-growing competition.

On October 28th the crops entered for competition were judged, with the following results:—Mr. A. Kloeden first, Mr. A. Board second, Mr. O. Leopold third, Mr. E. E. Lutz fourth, Mr. Kloeden fifth, Mr. E. A. Hasting sixth, Mr. C. Bergman seventh. The winner, Mr. A. Kloeden, is to be presented with a trophy, valued at £3 3s., at the next meeting of the Branch.

PETINA, October 7th.—Several matters of local interest were discussed. Mr. J. Bascombe tabled a sample of wheat that had been cut with the recent severe frosts.

WIRRILLA, October 7th.—The delegates to the Annual Congress (Messrs. D. Garrett and E. Blatchford) gave a report of the proceedings of Congress. A further meeting was held on October 12th, at Mr. A. G. Schunke's residence, when the Government Dairy Expert (Mr. P. H. Suter) attended and delivered an address, "The Dairying Industry." A keen interest was shown by the visitors when inspecting Mr. Schunke's dairy herd, records of which had been kept by Mr. Schunke.

YEELANNA, November 4th.—Mr. H. Smith read a paper that had been presented at the Annual Congress by Mr. A. J. A. Koch, of Lameroo. In the discussion that ensued members were of the opinion that if farmers could increase the area of their fallow land and devote less time to putting crops in on the stubble, better returns would be obtained. If that procedure was adopted the farmer would not have to crop such large areas, and more land would be available for grazing.

EASTERN DISTRICT

(EAST OF MOUNT LOFTY RANGES).

CLAYPAN BORE (Average annual rainfall, 16in. to 17in.).

October 2nd.——Present: seven members.

Shearing and Woolclassing on the Farm.—Mr. A. Bickford contributed a short paper on this subject. He said it was difficult to lay down any hard and fast rule for shearing on the farm, owing to the lack of facilities. Shearing should be done on a floor that could be kept clean, and the locks should not be allowed to lie about to be picked up in the fleece. A rolling table should be provided so that the second cuts and all small pieces could fall to the floor. If one with wooden slats could not be provided, one with a wire netting top would suffice. It was impossible in a small clip to class to any extent, but it was advisable to keep the good wool from the inferior. The bellies should be kept separate. If the fleeces were inclind to be dirty they should be well skirted. The fleece should be rolled from the tail towards the shoulder, so that the middle of the back was not visible whilst the shoulder was in full view. String or any fibrous substance was detrimental to the sale of the wool, and if the wool packs were in any way fibrous down the seams they should be turned inside out and singed. Colored string should be used for sewing the bales, special string being used for that purpose. A brand should be decided on for the bales and always used. By doing that and sending in the wool in good order, the brand would always be associated with a good clip and would find a ready sale. The clip should be sent to the same sale rooms each year so that it would become well known.

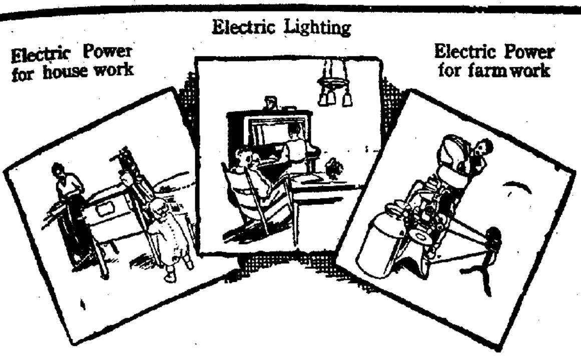
LOXTON (Average annual rainfall, 12in. to 13in.).

The Care and Cultivation of Vineyards and Orchards.—At a recent meeting of the above Branch the following paper was read by Mr. T. C. Nettleton:—"In dealing with this subject I will first deal with the winter work. The pruning should be done and the vines tied up if possible by the middle of August. This work can be started soon after the leaves have fallen in the autumn. This season the leaves hung on the vines till late in June, but usually the vines are bare by the end of May. All vineyards and orchards should be ploughed, if possible, soon after the autumn rains. This not only keeps the moisture in the soil but allows the weathering agents—sun, rain, frosts, &c.—to act on the soil and make more of the constituents in the soil available later on for the use of whatever the land is planted with. If the land is left ploughed until the spring the weeds by then have taken out most of the moisture, and unless rain falls subsequently it is a hard matter to plough the ground and leave it in a good mechanical condition suitable to cultivate, without clods, etc. If the first ploughing is done in May or June you can plough again in August, September, or October and usually leave the land in first class condition for the first watering. Of course, if the rains do not fall early you will probably have time to plough twice. In that case let the weeds grow for a while, but watch the soil closely, and be sure to plough before the weeds have taken too much out of the ground, or it becomes too dry to plough in good condition. Remember, land turned up in big lumps takes more out of the team and also the ploughman. Moreover, such ploughing does very little good, and no implement will work satisfactorily until either a shower of rain or a thorough irrigation has softened the clods or lumps to allow them to be broken into fine particles. For the first ploughing I recommend working to a depth of not less than 4in., and for the second not less than 6in., or 6in. if only one ploughing is given. Land ploughed twice will be found not only in finer condition, but to have held far more moisture, and most growers agree that the wet winters are usually followed by good crops. It behoves the orchardist to conserve all the moisture possible, and not to say, 'It doesn't matter, the pumps will be working soon, and we'll get it wet then.' Vines on land watered in the late spring after becoming very dry often send out water shoots. Any rain falling later on keeps the land in a very boggy condition, making things very awkward should you have to spray. There is at present no anthracnose or black spot in this district; still it would be a good precaution to spray all vines once or twice early in the season, because at this time it does not take much material or time, and the vines are very susceptible to either anthracnose or downy mildew. Several different formulae are used. Copper sulphate and lime generally give the best results—10lbs. copper sulphate crystals (bluestone), 5lbs. freshly burnt lime, water 50galls. The chemical actions that take place are very complex, but it will be found that the alkaline mixture, *i.e.*, that containing more lime than enough to neutralise the acidity of the bluestone mixture, withstands rain better than a neutral or slightly acid mixture. A test for neutralisation is shown by the phenol phthalein paper turning pink. Stop adding lime as soon as the paper changes color. The phenol phthalein paper consists of white filter paper wetted with a 5 per cent. solution of phenol phthalein in methylated spirits and allowed to dry. This paper is white when acid, and pink when alkaline. Litmus paper is red when acid and blue when alkaline. Summer Cultivation and Irrigation.—Most of the land under irrigation gets three waterings in the summer time, averaging about 6in. to 7in. per irrigation, and just as soon as you can get on to the land with the cultivator without bogging horses or pugging the soil with the horses' feet or the tynes, cultivate the whole surface as deeply as your team can comfortably pull the implement. Nine to 10 tynes are plenty for two horses to pull. Make sure all the ground covered has been thoroughly stirred. Remember, the finer the mulch, the less moisture will evaporate, and vines carrying a big crop of fruit take a lot of water to keep them going during the hot months. Repeat the cultivation every two weeks or oftener if time permits, or a show of rain sets the surface. Of course, if weeds have been ploughed in, or the land is not in a clean condition, it is almost impossible to cultivate it. In that case, work it with a disc harrow until the rubbish is sufficiently cut or broken up to allow the cultivator to do good work. Land carrying trees can be worked both up and down the rows and at one or two angles. This only leaves a small circle around the trees which has to be weeded by hand, but with vines that are trellised, it is necessary to use a grape and berry hoe. With a good steady horse you can weed all but a small piece around the vines and posts, and rows that would take an hour or so to clean can be weeded in a few minutes after being well grape-hoed. Whatever manure is used, it should be put in deeply, preferably sown in the bottom of the plough furrow with a special drill fixed to the plough handles. Ploughing takes longer to do this way but the benefit is worth the trouble.

PARUNA.

September 18th.—Present: seven members and visitors.

The Mallee Farm.—The Hon. Secretary (Mr. G. H. Flavel) read the following paper:—''So far as this district is concerned we are now approaching the starting point of farming. Our pioneering practices must be replaced by methodical and scientific work, and apart from cultivation a few general remarks will not be out of place. First and foremost the home must receive consideration. Even the crudest of homesteads can, with a little labor, be made more homely. We must not



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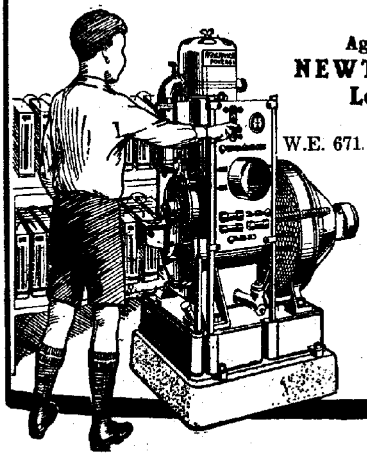

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forget the wonderful battle our women folk have put up during the initial years of progress; in fact, in many cases the success of farmers is due, in a large measure, to the noble co-operation of mothers, wives, or sisters. Much can be done to lighten their labors and brighten their lives. For instance, water could be connected to the kitchen, washhouse, and copper; firewood placed in a convenient place, and a plot set aside for a flower garden. A library or a musical instrument would afford endless pleasure. If funds permit, a motor car would make the attendance at social gatherings far more enjoyable. These are trifles, perhaps, but things which count for much in the life of the bush, and aid in making the home something to be proud of. Education.—A little spent on education would recompense the average child for the thousands of odd jobs it is called upon to perform. For instance, give the lad a course at Roseworthy College, and let him study, say, veterinary science, and your investment would soon be a profitable one, and the boy would learn the scientific part of his business, and would be a far more desirable citizen than if kept with his shoulder at the wheel all the time. The farm workshop is a necessity. An anvil, forge, a couple of pairs of tongs, stocks and dies, and vice would soon save pounds in loss of time. A bench, a plane or two, saws, wood chisels, several awls, harness needles, wax, and twine will give profitable and interesting employment on a wet day or cool morning. Implement sheds should be well constructed, roomy, and used for the machines, not for fowls. Galvanized iron costs more than straw, but is far more satisfactory, while sawn timber is more expensive than pine logs. One should be careful not to make the building an 'eyesore' for the sake of a few pounds. A barn of stone and iron for seed and super will soon pay for itself, and save time and worry, and improve the appearance of the farm to a great extent. Give the horses a good stable. They only get their feed, and will appreciate a little kindness. It is desirable to net the roadway boundaries and subdivide the holding into convenient six-wire sheep-proof paddocks of, say, 150 acres. Do not overstock. A few head, well kept, are better than a number half-starved, and surplus feed can always be utilised. Horses.—A good team of horses is something to be proud of, and a few breeding mares will enable you to replace your worn out workers. The ideal horse is, in my opinion, a big upstanding animal with fairly clean legs and good top. Two or perhaps three cows are necessary; more become a drudgery, and are often, during the busy period, left to the women folk to attend. At times dairying pays well, but in reviewing the seasons and considering the labor required I do not think dairying a payable proposition in our district. Two hundred or so sheep should be kept on the averaged-size farm. Dealing is to be recommended for the beginner, but as time goes on breeding will pay well. Sheep are a sure sideline and a valuable asset in keeping the fallow clean. Much can be done with poultry, because our climatic conditions are excellent. Build the fowl houses of iron, using as little wood as possible. Accustom the fowls to go into the houses at night. By so doing you obviate your implements becoming the roost. A few pigs pay very handsomely, and slops and inferior grain can be profitably fed to these animals. Construct open pens with pig netting, and build a breeding pen or two. Lay the water on, and the pigs will give very little trouble. Fallow will play a very important part in the development of the mallee, and farming will by this practice cease to be a gamble, and generally yield a sure return. Plough 3in. or 4in. deep as soon as possible after seeding. Harrow after the winter has closed, and continue to cultivate and harrow as much as possible. Continued working when the ground is crusted is the secret of success.'' During the discussion which followed, Mr. J. J. Ryan expressed a preference for a straw-roofed house for his fowls. That, he contended, was warmer in winter and cooler in summer. He agreed that two cows were sufficient on the farm.

RAMCO.

October 2nd.

Trellising.—A paper entitled ''Trellising'' was read by Mr. E. Burroughs. He said:—''In this district pine, gum, white mallee, and box are suitable for trellis posts. Box gum is to be preferred on account of its lasting qualities, and because it is less liable to be eaten by white ants. Split posts are best, and they should measure at least 6in. x 3in. at the smaller end. If round posts are used they should be cut from good solid timber. Strainers should be at least

9in. at the smaller end. The posts for all wire trellising, or trellising over 2ft. in height, should be 2ft. in the ground. This is necessary, because the top of the ground is kept loose and the trellis has a tendency to lean away from the prevailing wind, if the posts have not sufficient hold in the ground. Posts should not be more than 30ft. apart, 24ft. being about the best distance. Strainers should be put on the inside of the end vine, so that the vine can be trained up the anchor wire. I prefer wire anchors to struts. They are not so much hindrance and are more efficient. Nos. 8 or 10 soft galvanized wire is the best for this work. Tie one end to a small stone and put the stone about 2ft. in the ground. Bore a hole in the post between the two wires, on the same angle as that at which the wire meets the strainer. If the posts are bored on the angle the wire is less likely to break. For a currant trellis the posts should be 6ft. long, the first wire 2ft. 6in. from the ground, and the second wire 15in. from the first. For sultanas the posts need to be 5ft. 6in. long, with the first wire 2ft. 3in. from the ground, and the second wire 1ft. from the first. For Gordos I recommend posts 3ft. 8in. long, 1ft. 8in. in the ground and 2ft. out. The wire can be put on top of the posts and be held in position with a nail or staple. All strainers should be 3ft. 6in. to 4ft. in the ground, and sloped backwards away from the trellis. Steel galvanised wire, 11½ gauge, is the best for all trellising. Walker's wire-strainers are to be recommended for the straining up of the wires, as once they are put in place the wire can be tightened whenever required. The bottom wire of all trellising should be high, to facilitate the use of implements and to allow the wind to get underneath the foliage and vines, which tends to check the development of pests.

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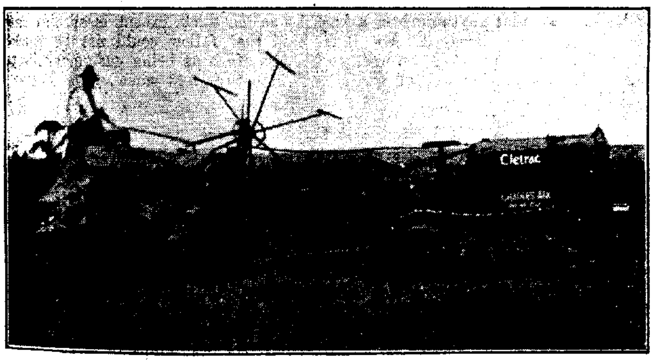

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WAIKERIE (Average annual rainfall, 8.89in.).

October 21st.—Present: 20 members.

Cincturing.—This subject was brought forward for discussion. Mr. N. Lehman recounted his experiences of cincturing. After an interesting discussion it was generally agreed that the first step to take to cincture currants was to remove the old bark from the vine, then a sharp knife should be passed around the stem, just cutting through the sappy bark. A second cut about 3-16in. away from the first should then be made, and the piece of bark between the cuts removed. Regarding the treatment of Sultanas, there was a diversity of opinion. The majority were in favor of one clean cut around the stem of the vine. It was not thought advisable to cincture the Gordos.

BARMERA, October 12th.—Messrs. A. Mutton and D. Brooke gave a report of the Annual Congress. Mr. V. C. Blunden delivered an address, "The Housing Question," and exhibited a 6ft. reinforced concrete trellis post, a brick made of gypsum, and a tile made of gypsum and sawdust.

GERANIUM, October 14th.—A very successful homestead meeting was held at Mr. W. Hughes's residence on Saturday, October 14th. A considerable number of members and visitors took this opportunity of inspecting and expressing their opinions on the crops in the vicinity of the homestead. Afternoon tea was provided by the ladies.

LAMEROO, October 7th.—Mr. W. R. G. Sharp gave an interesting address, "Rural Education," before a gathering of 17 members. An interesting discussion followed.

LONE GUM AND MONASH, October 11th.—The Government Poultry Expert (Mr. D. F. Laurie) attended the meeting and delivered an address, "The Poultry Industry."

PATA, September 6th.—Mr. D. L. Heitmann read a paper, "Rabbit Destruction," and an interesting discussion followed.

YOUNGHUSBAND, October 5th.—Mr. G. H. Mann, delegate to the Annual Congress, read a paper which had been contributed by Mr. Koch, of Lameroo. Mr. D. Brinkley thought that the quantities of seed suggested in the paper were excessive, and stated that he had grown heavy crops when only half a bushel had been sown, but he thought that three-quarters of a bushel was ample for their district. All members agreed that anything over a bushel was too thick, except in special cases where the seed was damaged. Mr. Bates said that fallow could not be worked in that district to the extent referred to by Mr. Koch as being customary in the Lameroo district, because the soil was of a light nature, and much of the best soil would blow away.

SOUTH AND HILLS DISTRICT.

ALDINGA.

October 7th.—Present: nine members and several visitors.

Homestead Meeting.—The monthly meeting of the Branch was held at Mr. T. W. Stone's residence, when members took the opportunity of inspecting the chaff-cutting plant, which was put in operation by Mr. Stone, jun. Next the clover plots were visited, and members commented very favorably on the quality of the pigs grazing in the paddocks. In an adjoining paddock, crops of Algerian and Sunrise oats came in for high praise. Among the wheat crops members agreed that King's Early gave indications of yielding the best crop. Very fine crops of Dun and Sunrise pease were next inspected. Mr. Stone stated that the land had only been ploughed and harrowed, and the seed sown with 100lbs. of super to the acre. A strip of about five acres had received 200lbs. of manure to the acre, and was showing a very much heavier crop than the land that had received the lighter application of fertiliser. A crop of Algerian oats showed every indication of cutting two tons of hay to the acre. After inspecting the stock, members and visitors were entertained at afternoon tea by Mrs. Stone.

BALHANNAH.

October 6th.—Present: 27 members.

ROTATION OF CROPS.—The following paper was read by Mr. G. Edwards:—"A few years ago the catch phrase, 'Three acres and a cow,' formed the main plank in the platform of a band of social reformers. The idea contained in such a phrase may be very well in theory, but the practical man who cannot do better than feed one cow on three acres of land had better give up farming and take up some occupation requiring less skill and energy. This latter statement applies especially to the small holder who, with the advantage of being able to concentrate his resources on a small area of land, may reasonably be expected to produce more per acre than a farmer whose operations are concerned with an extensive area. The small holder whose land is situated near a good market town where fruitgrowing and market gardening are possible, is already obtaining treble the revenue from his land that the large farmer in the same district obtains, but this kind of intense cultivation is not possible in districts with a scattered population, or where railway and market facilities are lacking. The small farmer under these conditions is compelled to produce more or less the same kind of soil products—milk, butter, beef, and bacon—as do his larger contemporaries. The trouble is that the farmer, large or small, has not realised to what extent the agricultural products are capable of being produced where an intensive system of cropping is followed. The small holder should, therefore, instead of feeding one cow on three acres, aim at keeping a cow, or its equivalent, on every acre. Whilst the present prices exist, corn growing is undoubtedly a profitable undertaking, but who can say how long such things will last? The clearing and breaking up of additional vast areas in these colonies, as well as in America and other wheatgrowing countries, the development of all farming machinery and the opening up of railways, all tend to increased production. But, while the foreign

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farmer may beat us, so far as corngrowing, he cannot beat us in livestock or in livestock products if we farm on progressive lines. The rainfall and climatic conditions are first consideration, and round about our own district we are not exposed to either extreme heat or superfluous moisture, so that we must bring our crops into line with the happy medium. A little elementary botany is useful to enable one to better understand the reasons for a rotation of crops. The leaves of the plant are the lungs. A plant really obtains its nourishment from the soil by absorbing through its roots, plant foods dissolved in the soil water. The moisture is expelled through the breathing pores of the leaves and green stems, leaving behind the plant food for the building up of vegetable tissue. It has been found that for every pound of dry matter assimilated by a plant, 250lbs. of water are expelled by the leaves. Since 250 parts of water are required for the elaboration of one part of dry matter, it follows that, for the production of one ton of dry matter 250 tons of water are needed. One inch of rainfall per acre is practically equal to 100 tons of water. In rape there is 14 per cent. of dry matter, therefore, by growing 25 tons of rape we rid the land by leaf evaporation of nearly 9in. of rainfall. The root action of rape facilitates drainage, therefore, by cropping with rape we rid the land of about the equivalent of 12in. of rainfall. The three factors of production to the farmer are land, labor, and capital, and when land is in pasture, excluding derelict land, the minimum is being produced from each factor. In countries like Denmark, Belgium, and Holland, forage cropping in place of pasture is carried on extensively. Four-fifths of the atmosphere consist of nitrogen, and the farmer who carries on his occupation scientifically can obtain this nitrogen free for his soil. Like most things easily obtained, however, atmospheric nitrogen is least valued. Instead of a farmer drawing on Nature for a free supply, he prefers to buy it in the form of nitrate of soda or sulphate of ammonia in which manures it exists to the extent of 15½ and 20 per cent. respectively. There are certain farm plants called legumes, which possess the extraordinary power of taking nitrogen from the air, using a certain amount for their own use, and storing the balance in the soil for succeeding crops. Among the legumes are crops of clover, beans, peas, and vetches. Farmyard manure is also very rich in nitrogen, and when extensively used means less need of artificial fertilisers. Leguminous crops are storers of nitrogen, while corn crops are wasters of nitrogen. Mangel-wurzel is rich in potash and sodium chloride, and potatoes are consumers of potash. A good rotation system will not only restore production to much unproductive land, but will maintain it for many years. The rotation of crops:—1. *Maintains the humus supply*—If land is continually sown to grain crops, the humus supply of the soil will decrease. Constant stirring of the soil causes the oxidation or burning out of the humus. If the same land is sown to grass, the humus supply will be maintained or increased. 2. *Restores Nitrogen*—Experience shows that where clover is grown once in four years the nitrogen supply can often be maintained, even when the clover is not ploughed under. 3. *Alternate crops having different root systems*—Plants having different root growths such as legumes, root crops which have deep tap roots and grains having fibrous roots, all require their food in different ways and proportions. Root distribution is an important consideration, for while some crops such as barley are shallow rooted, others like wheat, lucerne, and clover are deep rooted. They take their food from a different section of the soil and it is possible that when a field is exhausted for one species of plant, it may be productive for another. 4. *Control of weeds, fungus diseases, and insects*—Most weeds are easily controlled under rotation, also certain injurious insects which would become abundant if the same crops were sown continuously. If, for example, onions are grown on the same ground many years in succession they become subject to maggot and mildew. A particular plant may encourage the propagation of germs or disease ready to invade a succeeding crop of the same sort, such as potato disease spores, or it may be some form of rust or eel worm, which is best avoided by a change of cropping. Rotations do not keep up the mineral supply, although well managed with manure, the humus and nitrogen are there, but not so the necessary minerals. The majority of holdings have been cropped regularly for many years and probably exhausted most of the mineral elements. The lime is especially low, due to leaching, and must be added to the soil for best results. There are, however, other observations and considerations which affect the question. Barley requires food near the surface and ready to hand, as it passes through all its stages in about four months. Wheat occupies the land much longer and being deeper rooted is less dependent upon immediate supplies of plant food. Hence, farmyard manure, or decomposing clover roots, are excellent for wheat, but too slow for barley. Equally important is the varying proportion in which plants take up fertilising matter. Cereal crops require phosphates for their grain and potash for their straw, and are largely dependent upon nitrates. They make a considerable demand upon the available nitrogen and mineral food in the soil. They call for their nitrogen when the nitrifying bacteria have scarcely regained activity and after a large amount of nitrates have been washed through the soil by the winter's rainfall. The maximum nitrogen content of a cereal crop is achieved during its blooming period and the subsequent changes which take place are carried on within the body of the plant. Grass lands will be used to give example of the order of rotation cropping:—First year sow field peas. Second year sow wheat, which will give the best return for hay. Third year a crop of oats will do a great amount of good in sweetening the ground after wheat. Fourth year sow barley or rape if required for grazing purposes for sheep or cattle, but if not required wheat or peas could be sown, preferably the latter, because of their great value to the soil. This table applies principally to this district, but in the northern areas it is not possible to grow peas so successfully as here, consequently the rotation would be divided between wheat, oats, barley, and after recent experiments, subterranean clover. Rotations generally assume the form of alternation between crops for sale and crops for home use, cleaning crops and those which do not allow for hoeing, exhausting and renovating crops. Food for man and food for beast. Rotations are thus built up gradually and unconsciously, for the established courses of cropping do not appear to have been so much invented as evolved.

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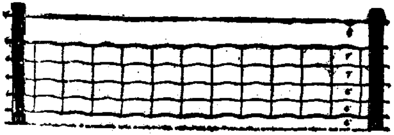

Fig. 7—Cyclone Special Spring Coil Sheep Fence.

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CHERRY GARDENS (Average annual rainfall, 35.03in.).

October 21st.—Present: 12 members.

Fruitdrying in the Hills.—Mr. A. R. Stone read the following paper:—"In presenting this short paper the writer desires to make it clear that the subject dealt with is purely the result of experiments of one season only, that is to say, the year 1920, and the sort of fruit that was treated was principally Duchess or Williams' pears. So far as this particular district is concerned, we believe it to be the first occasion on which this fruit was treated in an attempt to produce a dried product. The attempt was made only when this class of pear was so plentiful and did not command a price that was considered worth while, in the fresh or green condition. When it is proposed to dry these pears, the first operation is to gather the fruit carefully and while it is still firm. The proper time can be ascertained by placing the hand underneath the pear and lifting it upwards. If it leaves the tree freely at the joint of the stem it will ripen. Do not pull pears off a tree before they have reached this stage. If the quality of the fruit is to be maintained, and bruising avoided, it should be placed in cases or on straw, not more than two or three fruits thick, so that in ripening the weight will not bruise the pears. When they have become a bright yellow color, and the stem is easily drawn without bursting or breaking the fruits, they are in fit condition for drying. Before the pears are cut, it is advisable to have the sulphur box and fruit trays ready. The former can be constructed of a light framework of wood covered with canvas and whitewashed, or papered on the inside to make it airtight, and of such a size as is necessary to hold a given number of trays. The trays may be made with ½in. soft wood for the bottoms, with end pieces somewhat more stout, ¾in. for preference, and from 2½in. to 3in. high, or sufficiently high to avoid crushing the fruit when they are stacked in the sulphur box. When ready to cut the fruit, pull out the stem, and with a sharp knife divide the fruit equally, commencing at the stem end and cutting through to the flower end with a smooth cut. Place as many pears, cut side up, as will conveniently fill the tray. Place one tray upon the other in a stack until enough is prepared to fill the sulphur box. Select a suitable level position, with the hole about 1ft. deep on the outside at one end for the sulphur tin. From this a small channel about 6in. by 3in. along the centre to the other end of the sulphur box should be made to carry fumes evenly underneath and between the trays of fruit. Place the trays a small distance apart—half an inch will do. Do not allow the stack of trays to touch the sides or top of the box. It is best, when cutting the fruits, to grade it according to size. In the process of sulphuring it is best to place the largest size on the top layers. It is desirable to light the fires as quickly as possible after the desired quantity of fruit is cut while the fruit is still freshly cut and not discolored on the cut surface. The end of a kerosine tin 3in. or 4in. deep can be used as a container for the sulphur. Next put the charcoal in the bottom of the tin and add the sulphur. Before lighting, see that the sulphur box has an airhole in the top, and that it is sealed around the bottom, with clean sand for preference, so that no fumes will escape during the process. After the sulphur is well alight, which can be determined by smelling the bunghole on the top, cork the hole and check the escape of the sulphur fumes. The quicker the process the better for the fruit. The weather has much to do with the result. If fine, warm to hot weather prevails, a better color results, while if dull, cloudy conditions with a damp atmosphere at night are experienced, the fruit will not take the sulphur so quickly, and the result is a brown or dark-colored product. With favorable conditions the fruit should be of a light-amber color, very soft, and almost transparent. After removal from the sulphur box the trays of fruit should be put in the sun in rows to dry as soon as possible, care being taken to stack and place them under cover every night. If the weather is dull or wet and cold it is best to leave the fruit in the stack, and cover it with iron, leaving plenty of space between the trays for free ventilation. If hot, dry weather prevails, a few days will produce a good product. If otherwise, it is a long process, and the dried article is of bad color. I consider pears the most difficult of all fruits to dry, because they are so thick and full of moisture. Other fruits—peaches, apricots, or plums—can be treated in a similar manner, and are much easier to treat. They take less sulphur and much less time. Care should be taken to grade both for size and color, and to put the produce into clean papered boxes, clearly marked as to their contents. Grading at this stage is more easy, because the smaller fruits dry in a shorter space of time. The boxes should be kept in a clean dry place. After the experience gained in 1920, I do not consider that fruitdrying in the hills near Mount Lofty is a payable proposition, owing chiefly to climatic conditions. Another factor is that the public generally are not as yet familiar with the value of the pear as a dried fruit product, and therefore the sale is not good."

KANGARILLA.

September 8th.—Present: 20 members and three visitors.

QUESTION BOX.—The meeting took the form of a question box, when a number of questions were asked and answered by those present. In reply to a question as to what was the best fodder to mix with chaff to feed to milking cows in order to obtain the best results in butter fat, Mr. Connor said that the butter fat could not be increased to any great extent. He had tried, but had no better results with altered feeding. "What breed of pig is the most profitable in this district?" was the next question. One member favored the Berkshires, because there was a good demand for them, and they sold readily. Another member favored the Tamworth-Berkshire cross for bacon production. In regard to the class of horse most suitable for farm work in that district, the majority of members were in favor of medium draughts and lights. "In view of the present condition of the fruit market, which is the best class of fruit to plant?" was the next question. Members were in favor of planting the following varieties of apples, because they could be either exported or stored:—Jonathans, King Davids, Dunn's Seedling, Cleopatras, and Rome Beauties. Members considered that the Jonathan apple was the most profitable variety to grow. In regard to spraying young fruit trees that had not come into

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bearing, members thought this was advisable, beause it kept them clean and healthy. A spray composed of 5lbs. bluestone and 100galls. of water would be effective. Members considered that bonedust was the best fertiliser to use on young stone fruit trees.

LONGWOOD (Average annual rainfall, 37in. to 38in.).

September 30th.—Present: eight members and six visitors.

Homestead Meeting.—The monthly meeting of the Branch was held at Messrs. A. and H. Gurr's homestead, when an inspection was made of the extensive poultry plant. The fodder and hay crops were also inspected. After an adjournment for afternoon tea Mr. J. Roebuck initiated a discussion on potato growing, in which he said he had found it unsatisfactory to plant the butts of seed. The crowns with sturdy shoots should be selected for planting. Carmen's No. 2 was an excellent variety, it produced large potatoes; Up-to-Dates were also good, but the seed should only be cut one way.

MEADOWS (Average annual rainfall, 35.52in.).

September 6th.

Mr. A. J. Elliott read a paper, "The Misuse of Manure," and in the discussion that followed members agreed that farmers and orchardists did not take sufficient care of farm manure. Mr. Smith stated that during one winter he had bedded his cows on clean sand. He considered that the sand had kept the animals in a cleaner condition than other bedding, and he obtained a very valuable manure. Mr. Elliott also read an article dealing with milk and butter records in America, which brought forward a good discussion. Mr. Brownlees tabled a number of fruit stands and and egg cruet that he had made from locally grown timber. Among the variety of woods were acacia, sheoak, olive, quondong, blackwood, and manna gum.

ROCKWOOD.

October 2nd.—Present: 11 members.

Cereal Growing in a Heavy Rainfall District.—The Hon. Secretary (Mr. M. J. Meyers) contributed the following paper on this subject:—"There are many setbacks to be met in our district when growing a cereal crop. The severe wet winters are not altogether favorable for wheatgrowing, but under the system of rotation as I am dealing with it a very payable crop can be grown. In nearly every farm (if not every farm) it is necessary to cultivate a portion of the land for cereals. A stack of hay is a good asset, especially if dairying is to be one of the lines. Good oaten chaff, with the addition of bran, fed to milking cows will return a far greater profit to the farmer than selling the chaff at £4 per ton. If pigs are to be kept profitably, one must grow his corn. In a heavy rainfall area as we have in this district it is not so easy to grow heavy bulky crop as it is in the wheatgrowing areas of this State. Climatic conditions are even more severe on us than the northern parts. Where the latter suffer with dry seasons these parts enjoy bumper yields through the lack of moisture. Most of our soils are very deficient in lime, and consequently superphosphates do not give the same results as they do in the wheatgrowing areas. I strongly advocate a rotation of crops, which means that two or more crops different in type are made to succeed each other, and by this method the land can be cropped year after year with a liberal dressing of superphosphates. My experience has been that growing a hay or grain crop in heavy rainfall areas will not produce such a strong rank growth as in the drier areas, but the quality of both hay and grain will be good. Under this system of cropping year after year, 20 to 30cwt. hay per acre, 15bush. wheat, and 25bush. oats are very payable crops. There are seasons when these weights will not be yielded when climatic conditions are exceptionally wet. When ploughing, commence after the first rains in autumn when the weeds have started, and in shallow soils where the subsoil does not allow the moisture to get away, plough the paddocks in half-chain lands throwing the crowns well up, thus leaving a good drainage either side to the furrows. Leave the headlands unploughed, otherwise the ends of the furrows are blocked, allowing no outlet for the water to get away. In the South-East a V-shaped log is pulled along in the furrows after sowing, leaving the furrow clean and making a good channel for the water to drain away. I favor leaving the headlands unploughed until about the end of July or August, then sowing with peas. By this time most of the rainy season will have passed (in average years). However, if much rain falls after that time it has not the same drowning effect on the roots of the plants. Planting headlands with peas has an advantage as well by making a fire break for the standing crop or hay field. If the rotation system is followed the headlands would have to be planted with a different leguminous crop in alternate years. For this locality I prefer the mouldboard plough to the disc. The latter to my mind is a good weed cultivator, but the mouldboards turn the soil over and prepare a better seed bed. In most of our soils the depth of ploughing should be 2½in. to 3½in. for wheat or oats. The land to be sown with peas would require ploughing to a slightly greater depth. Preparing the seed bed requires practical knowledge and careful working. Too little preparation, as well as too much working, is detrimental if the rainy season is a heavy one. If you want weeds work the land down to a fine tilth. Harrow once or twice before the drill whichever is necessary. Drill in for wheat 1¼ to 1½bush., oats 2bush., barley 60 to 70lbs., peas 2bush. together with 1½cwt. super, and harrow once after the drill to ensure covering all the seed and leaving the land in good order for implements to follow at harvest time. These soils answer well to summer ploughing after a rain and working during the autumn with a springtooth cultivator, this implement doing excellent work if sorrel is prevalent. The tines drag the roots out and distribute them on top where the sun can dry them up. I would not advocate working the land down fine. Leave it as rough as possible in this summer working. I prefer to see the land covered with nice sized clods because they make good shelter for the young plants when they come up. I favor early sowing in this district—about the beginning of May—according to the time the rains fall. Crops sown at this time will have a better chance of becoming established before too much rain sets in, and there is also the advantage of not having the seed rot as is often the case when it is sown in June and July. Where crops are sown early it is necessary to feed them off to secure good results. Feeding down a crop at the right time will produce five stalks where perhaps two or three were before. Feed off any time up till August, but after that month it is not advisable. A large number of sheep should be put on to feed off a crop because they eat it down more evenly. Do not put them on during wet weather. After taking the sheep off run a light roller over the land, and if it has set very hard and weeds are plentiful, follow with the harrows. The harrows should be sharp and diamond-pointed for preference. Harrow across the drill rows. A very profitable crop to grow is Cape barley. If sown early it will give a field of early feed and can be fed off during the winter, and then left to mature for grain. Barley fed to pigs will return more per bushel than when sold as grain. Peas answer well when sown on land that has been ploughed early in the season, and then ploughed again in July or August when it is time to sow. I favor August sowing in this locality. Drill in two bushels of seed, harrow, and then roll. With the present prices of lamb and pork it is not payable to go to too much trouble in gathering the pea crop. Rake up enough with a horse rake for seed and other requirements and turn pigs or lambs on to the field. There may be a little risk with this practice by getting a heavy rain before the peas are all picked up causing them to grow. In the event of this happening I would advise anyone to let the peas grow and plough them in green. I once experienced this, and after sowing with wheat a very heavy crop was taken off the same land.'' During the discussion which followed, Mr A. E. Henley said he favored ploughing to a depth of 4in. He thought 2½in. was too shallow, the deeper ploughing killed the weeds far better than the shallow ploughing. Mr. E. R. Heath stated that sorrel was prevalent on his farm and he had difficulty in eradicating the weed. Mr. Hodgson was of the opinion that sorrel seed did not germinate the first year, but took two or three years. The best method of destroying sorrel was to drag it out by the roots. He did not advise fallowing before September or October in that district, but favored working the fallow during the hot weather. Mr. Scott found sorrel very difficult to cope with on his farm. He favored the disc plough to the mouldboard because the disc chopped the roots better and left the land rough and open for the sun to dry the roots.

BALHANNAH, November 7th.—During the afternoon members visited Mr. H. N. Wicks' nursery, where an opportunity was afforded of inspecting two motor tractors at work. A visit was also paid to Messrs. A. Spoehr & Sons' dairy farm, to view a milking machine in operation. In the evening the Dairy Expert (Mr. P. H. Suter) delivered an address, "The Dairy Industry."

CYGNET RIVER, November 2.—Mr. H. Curtis gave an address, "Fruit Culture." Reference was made to woolly aphis, and the speaker recommended treating the affected trees with red oil or black leaf 40. An interesting discussion followed.

IRONBANK, September 30th.—The Hon. Secretary (Mr. H. E. Tucker) read a paper entitled "The Bird Pest," which created an interesting discussion.

MEADOWS, October 18th.—Mr. C. H. Beaumont (Horticultural Instructor and Inspector for the southern districts) visited the Branch and delivered an address, "Sprays and Spraying."

MILANG, September 9th.—Mr. E. C. Bagley contributed a paper entitled "Improvements in Dairying," after which a paper on "Foods for Dairy Stock" was read by Mr. O. Nelson, which caused a keen discussion.

MILANG, October 14th.—The meeting took the form of a "Question Box," when the following subjects were introduced for discussion by the undermentioned members:—"Does it pay to cut straw with a binder?" Mr. D. J. Turvey; "Should a farm be worked to time?" Mr. F. Gardner; "Getting rid of pigface and artichokes," Mr. C. Nelson; "Best wheats for our district," Mr. A. Davidson; "Best stage of growth to cut cereals for hay," Mr. S. H. Goldsworthy; "Are noxious weeds increasing in the district?" Mr. B. Blackwell.

STRATHALBYN, September 5th.—Mr. E. J. Crawford read a paper "Ensilage," and a free discussion followed. The delegates to the Annual Congress and the Winter School for Farmers also presented their reports.

SOUTH-EAST DISTRICT.

KYBYBOLITE.

September 7th.

Sheep and Wool.—The following paper under the title "Requirements of Wool Users" was read by Mr. A. E. Cother:—"I propose to deal briefly with the wools we produce, our obligations to ourselves and to wool-users. Our interest is purely parochial and confined to Merino wools of from 60s to 70s quality. Quality is the word used in defining the fineness of fibre, and when we say a wool is of 64s quality it conveys the meaning that the wool in question should spin to such a length of yarn, that it will take 64 hanks, each measuring 560 yards, to weigh 1lb. of spun material. It is a standard and guide fixed by the trade, although it may not always be rigidly adhered to; experience in Bradford shows that one topmaker may produce a super 60s that would be identical with the 64s of another firm. But so long as the spinner gets what he wants, it does not matter how the tops are classified. *Counts.*—It may be of interest in passing to deal with the whole range of counts and the manner in which such wools are bred. Lincoln wools vary from 32s, 36s, to 40s. Medium crossbreds.—40s, 44s, 48s, to 50s—The first three counts represent three-quarter bred Lincolns and 50s the first cross between Lincoln and Merino. Fine Crossbreds.—56s. and 58s., 56s representing the quarter-bred Lincoln wool, 58s the comeback to Merino.

You will understand, actual breeding may not give this result, as great variations occur with crossbreeding. The counts of the different crosses mentioned are the averages of the wool that would be obtained from these methods of breeding. The counts of English wools approximate our crossbred types. The strongest wool used in the trade is the Scotch blackface, and figures as the lowest count—28s. It is more like a cowtail lock than anything else, and is mostly used in carpetmaking. To deal with the English wools we are best acquainted with, it is sufficient to say that Leicester and Romney Marsh (longwools) are 40s to 48s counts. The short wools of the Down and Shropshire types, 50s. to 56s. The longwools of Great Britain are notable for their lustrous appearance. The short crumpy wools have a special value in the hosiery trade. The lowest count fixed for Merinos is 60s, the highest perhaps 90s. Our own interests are centred on 60s, 64s, and 70s wools. We do not specialise in any particular type of wool, and I am afraid our wools can only be described, in a district sense, as nondescript. Are we slipping back instead of going forward? Under large holdings the South-East had a name for fine-quality, high-yielding wools, with a special value to the trade. Under closer settlement—and wherever you look it seems a natural sequence—we have any and every type of Merino, from broad 60s quality upwards. In our flocks we see rams representative of nearly every type in the Commonwealth. We do not seem to have fixed upon or evolved a type that is specially fitted for this special environment. To grow any breed successfully it must be in harmony with its surroundings. The type that finds most favor is the northern outcross. In this connection we must ask ourselves the question, 'Are any stock improved by the transition from the north to the south?' Success, we know, is easily acquired by the migration of the southern animal to the north. It is claimed that the northern wools fine off in fibre in our district—a doubtful contention. If the animals are not properly fed and poorly treated they lose their bone and spring of rib and weight of fleece—all the qualities that render them so admirable for northern conditions. There are probably at present unique advantages of building up a type that would give us high-quality wools and other desirable qualities in our flocks. The 'Improved Tasmanian' and the western district flocks of Victoria present this opportunity. The climatic outcross is not so violent, and there is no doubt about the high quality of their coverings. The Tasmanians have successfully produced a plain-bodied sheep, carrying an admirable length of staple, cutting good weights, a deep-bodied symmetrical sheep with well-sprung ribs; and personally I do not think they can be equalled underneath. I feel sure that if members went abroad and saw the present fine wool they would modify their views with regard to strongwools. It will be urged that the latter are the commercial sheep, but the fine wools of the improved type have yet to be exploited in this district and present an opportunity we have never had before. With a district particularly suited for growing a fine fibre, free from dust and vegetable matter, a type of wool that can only be successfully grown in the western district of Victoria and coastal districts of New South Wales, it does not seem wise to grow wools that can be grown in any other portions of the Commonwealth. In the districts mentioned fine wools are diminishing, chiefly through the inroads of closer settlement. Ultimately their value will be out of all proportion to other wools. However, I would suggest to members that whatever type they may build on, stick to one blood of that type, and do not go chopping and changing about from one blood to another. The difficulties of making an even parcel of one small clip are great enough, without deliberately introducing variations by indiscriminate breeding. One has to regard wool and look upon the article as a commodity destined to serve a useful purpose, and if the producer and the wooluser can agree upon the right class of article to be produced, then both parties are satisfied. The trade requires the same quality in a staple of wool from root to tip, for the simple reason that unevenness will appear in the top, the yarn, and the fabric. It is of paramount importance that wool be uniform in quality and as near level and true in character as possible. I would like to remind members that when skirting a fleece to cut well into the neck and breech, if harsh, wiry fibres are present, and not let them go in with the best combing lots to depreciate the quality and lower the price. So long as we have enthusiasm we shall make progress; indifference is fatal to our flocks. Under present prices the growing fleeces are more than a by-product of the farm. With improvement of pastures by cultivation and the probabilities of benefits to be derived from top-dressing pastures, the carrying capacity is increasing. The world to-day wants good wool. Do not produce poor fleeces, but wool of first-class quality, length, and condition. It is the class of wool the manufacturer wants, and this district is particularly suited for the production of that type of material.

A further meeting was held on October 2nd, when Mr. L. S. Davie read a paper, "Top Dressing of Pastures." The manager of the Kybybolite Experimental Farm (Mr. L. J. Cook) also read an article, "Grass Fertilization."

NARACOORTE, September 9th.—Mr. A. K. Rowe (herdsman of the Kybybolite Experimental Farm) gave a demonstration of milk testing with the Babcock tester and replied to a number of questions.

PENOLA, November 4th.—In company with the Superintendent of Experiments in the South-East (Mr. E. S. Alcock) a number of members of the Branch visited and inspected the experimental plots, carried on under the supervision of the Department of Agriculture on Mr. Adamson's property.

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